WHY INEGI?
The saga of a Mexican institution in search of the truth
Has developed professionally in the fields of public administration and official statistics.

He was the Vice-President of the National Subsystem of Government Information, Public Security and Justice of INEGI (2008-2018), as well as the President of the International Association for Official Statistics (IAOS) during 2017-2019.

In addition to holding various positions in more than 20 years at INEGI, an institution he considers home, he has been a deputy-minister and senior officer in various state ministries.

He has published articles in specialised journals, two narrative works and has presented papers in numerous international forums.

For his contribution to the international statistical community, he was awarded the Henri Willem Methorst (1995) and Adolphe Quetelet (1999) medals by the International Statistical Institute (ISI).
WHY INEGI?
The saga of a Mexican institution in search of the truth
translator: Alexander Smith

Why INEGI? THE SAGA OF A MEXICAN INSTITUTION IN SEARCH OF THE TRUTH

The views and opinions expressed in this publication are the sole responsibility of the author and do not necessarily represent the views of the National Institute of Statistics and Geography of Mexico (INEGI).
INEGI has been built over the years thanks to the professional work of many people. Irrespective of responsibilities and hierarchy, this book is dedicated to those people.
INEGI. Why INEGI? The saga of a Mexican institution in search of the truth. 2020.
Who are we, where do we come from, where are we going? The above are, without a doubt, questions that have marked the development of human thought throughout history. They give meaning to our existence; they take us back to the famous Greek aphorism, "Know thyself". Knowing the series of events and circumstances that have come together to result in what we are today is fundamental to giving meaning to our existence, both individually and collectively. Therefore, our present is, to a great extent, the result of our history.

Charles Darwin in his book *The Origin of Species*... states that "... from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved...". As Yuval Noah Harari reports in *Sapiens...*, human evolution is a reality that could overcome any fiction, it contains dangers, sacrifices, stories of heroism and overcoming, but above all of adaptation. In the same way, there are institutions whose evolution is on par with any novel and is worthy of being told beyond what could be obtained from official documents, whether because of their origin, their changes over time, relevance, the dangers they have faced, the efforts made to position them, the stories of their staff and the events that touch the daily lives of those who form part of them. All these aspects finally come together in the institutional memory.

The National Institute of Statistics and Geography (INEGI) is an institution whose origin and history of transformations is full of circumstances and edges that, if known and told in the right way, would interest a larger public than could be initially considered. The evolution of INEGI is of interest not only to academics and re-

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1 Perseus Digital Library, “Pausanias, Description of Greece. Paus. 10.24”,
searchers, but to all those interested in the human side of organisations, for people who are seeking to understand not only what, but why and for what, as well as the direction in which State institutions are moving. A story of this nature is also of interest to those who seek to understand Mexico's democratic growth in recent decades and to contextualise its relationship with INEGI's obligation to portray the reality of our country.

However, there is a problem in developing a narrative of this magnitude and scope, that is, a narrative that goes beyond the traditional official historical documentation of the institutions of the Mexican state, which by legal mandate must be preserved. To give history a profoundly humane vision, the problem of who tells it must be resolved.

When I began my term as president of INEGI, on January 1, 2016, I joined a Governing Board made up of four professionals in the field of statistics and geography of the highest prestige and experience, one of whom was Mario Palma, who at that time was in his third stage of work at the Institute. Mario is, originally, a lawyer obtaining his Bachelor of Law from the National Autonomous University of Mexico, and added an internationalist character by concluding a Master of Law and International Politics from the London School of Economics and Political Science.

His professional history has been largely linked to that of INEGI, where he was Deputy Director of Standards and Technical Services (1983-1984), Executive Coordinator (1988-1990), Administrative Coordinator (1991-1999) and Vice-President of the Governing Board (2008-2018).

Mario has been part of the Institute throughout very different stages of its history, from its creation 37 years ago, to where we are today of constitutional autonomy. He has worked with and met hundreds (perhaps thousands) of people who have been part of the INEGI community and who, together, have given direction and defined what the Institute is today.
For this reason, and because of his extensive experience, he is the ideal person to integrate and relate the evolution over the years of this key institution of the Mexican State.

*Why INEGI? The saga of a Mexican institution in search of the truth* is a brilliant, entertaining and exciting account of the history of our institution. Its pages contain the answers to the existential questions I posed at the beginning of this text: who (or what) is INEGI?, where does it come from? and where is it going? Mario Palma tells us how the union of Statistics and Geography was created in a single entity and how the Institute’s IT functions were lost, while maintaining the I in its acronym.

With an introduction, 11 chapters divided into four parts and a corollary, Mario presents, first, why it is necessary to have an institution that is dedicated to displaying, through statistics and geography, what is happening in a country.

Later, he gives an account of the first 25 years of the Institute's life. It begins with its conception in 1982 at a meeting that would be the watershed for statistical and geographical information in Mexico and its subsequent creation by presidential decree in 1983. It touches on the affectations suffered by INEGI with the tragedy of the 1985 earthquake and how it overcame them, including the consequent decision to move the Institute's headquarters from the then Federal District to the city of Aguascalientes, with the complexity of relocating thousands of workers and their families, while continuing to carry out the increasingly numerous information programmes under its responsibility.

Mario also summarises how INEGI positioned itself at the end of the last century within the Federal Public Administration as a prestigious institution, and was therefore entrusted with various key projects by the administrations in office. In addition, information programmes were being carried out which are, by definition, the responsibility of a national statistics and geography office: the different Population and Housing, Economic and Agricultural Censuses.
The story told by Mario continues with the search for INEGI's constitutional autonomy. This idea began with the conceptualisation of the Institute in 1982, continued with a bold inclusion of a paragraph in a programmatic document in the mid-1990s, and reached the legislative arena at the beginning of the 21st century. In the process of democratising the country's public life during those years, the Institute's autonomy materialised with the approval of the reform to Article 26 of the Constitution in 2006 and the subsequent enactment of the Law on the National System of Statistical and Geographic Information in 2008, integrating three national information subsystems into its functions: 1) Demographic and Social, 2) Economic and 3) Geographic and Environmental.

Later, Mario tells how INEGI has lived its autonomy day by day, since the addition and consolidation of the fourth subsystem, that of Government, Public Security and Justice information, and tells how it has positioned itself as a leading institution at a national level and a world leader due to the diversity and quality of its information programmes: we see the history of the complexity of undertaking censuses (Economic in 2009, 2014 and 2019, Population and Housing in 2010 and 2020, the new ones of Government and the difficulties of being able to carry out the Agricultural census). It also describes the variety of household and business surveys; the use of administrative, geographical and environmental records; and the integration of statistical information with geographical data and other information related to the Sustainable Development Goals of 2030 Agenda.

Returning to Charles Darwin and The Origin of Species, which says "... it is not the strongest of the species that survives [...] it is the one that is most adaptable to change...", Mario describes the evolution of INEGI. He recounts of the actions taken in adapting to the new information age, characterised by fake news and Big Data, and how the Institute has managed to remain relevant in the new data ecosystem, with increasingly complex information demands.

As a clear example of this ability to adapt and respond quickly to pressing information needs, while Mario was completing this
book, the whole world faced the COVID-19 pandemic. This marked the beginning of a period in which INEGI had to adapt its processes to the new reality of a legal prohibition on conducting face-to-face surveys, in addition to the demands of the statistical information society that would allow the effects of this global crisis to be measured. Mario reviews the actions taken by the Institute in response to this health emergency to ensure the continuity of the socio-demographic indicators generated by these statistical operations, and to guarantee that the provision of information captured in establishments, as well as that produced by derived statistics (Mexico’s System of National Accounts and national price indices, among others) and that obtained from administrative records (such as International Merchandise Trade Statistics of Mexico) was maintained. In addition to the above activities, INEGI faced the challenge of designing and setting up specific information programmes to measure the impact of the pandemic.

Although the story deals with the challenges that the Institute (and other national statistical offices) faced as a result of COVID-19, a study and in-depth reflection on the lasting impact of this pandemic on the way statistical and geographical information is generated, both in our country and worldwide, is still pending. This topic is no longer the subject of this book and, since an objective analysis of this health emergency requires taking distance from its occurrence, addressing these issues deserves a volume of its own.

Finally, in the last two chapters of this book, Mario shares a brilliant exposition on the global trends of national information offices, as well as the possible risks and vulnerabilities they face. Based on international experience, he presents various specific cases of countries in which the independent production of statistical information has been affected and the consequences that these incidents have had, listing possible risks to data integrity and potential cures. It impeccably closes an account of almost 40 years of INEGI’s history with its Corollary 2020.

It is worth noting that, integrated into the text to exemplify the arguments, Mario narrates different anecdotes experienced during
his three stages at INEGI. In particular, one refers to an international event in Cairo, Egypt, where he excellently illustrates the adaptability and problem-solving that INEGI has faced throughout its history.

Why INEGI? The saga of a Mexican institution in search of the truth is a fascinating book, which will interest a very diverse reading public, starting with all Inegians who have passed through the ranks of the Institute; to researchers who seek to learn about the development of official statistical and geographical information in the country; to those interested in the legal and institutional path that was taken to create INEGI and its subsequent transformation into an autonomous body; to public officials who seek to know the success story of the decentralisation of an institution of its size and complexity; and to those who are interested in all the people who over the years, with their daily work and efforts, carried out these actions that have made it possible for INEGI to be the institution of excellence that it is today.

As mentioned in the text of the book, the National Institute of Statistics and Geography is the Mexican State institution in charge of providing a clear image, through data, of the reality of the country. There is no better person than Mario Palma to tell the story of INEGI from the inside.

Julio A. Santaella,  
President of INEGI,  
September 2020.
The elaboration of this book has been made possible by the individual support of many people and the institution with which they are all aligned in terms of values and objectives.

Julio Santaella, the current president of INEGI, was the one who originally put the idea of writing the history of the Institute on the table, a proposal accompanied by the condition that it be an authorial work, as opposed to a document of an official nature. Rarely have I been so pleased to take on a responsibility of any kind, as in this case. This gratitude also covers the institutional facilities and support made available for this work and which have been crucial to its undertaking.

Pedro Aspe, Carlos Jarque and Eduardo Sojo, previous presidents of the Institute, provided key data and comments on relevant events that took place during their respective administrations. Their generosity and - I must say - enthusiasm are proof that membership of the INEGI community is everlasting.

Numerous current and former colleagues responded to my calls and, in the purest tradition that characterises them, provided valuable information on many of the programmes and, in some cases, incidents in which they have been involved: Omar Berrospe, Arturo Blancas, José Luis Bonilla, Enrique de Alba, Gerardo Durand, Andrea Fernández, Raúl Figueroa, Salomé Flores, Adrián Franco, Pilar García, Eduardo Gracida, Francisco Guillén, Froylán Hernández, Juan Manuel Yglesias, Óscar Jaimes, Eduardo Jallath, Gerardo Leyva, Fernando Medina, Paloma Merodio, Omar Muro, Rolando Ocampo, Enrique Ordaz, Susana Pérez Cadena, Carmen Reyes, Gaspar Reza, Bertha Rivas, José Romero, Ciro Salomón, Raúl Sanchez, Josué Suárez, Iñigo Suárez, Nuria Torroja, Jorge Ventura, Edgar Vielma, María Antonieta Villegas, Natalia Volkow and Luis Zapata. I appreciate your support and the opportunity to mutually reminisce on the pleasant events of the past.
Antonio Guerrero, statistical and demographic historian, provided bibliographic material and pointed out exploration routes; Armando Aguiar, Rogelio Briseño and Anastasio Reyes not only opened the doors of the Emilio Alanís Patiño Library, but also accompanied the review of its entire collection; José Antonio Maldonado and Lilia Martha Domínguez identified and provided publications, as well as historical material from the collection housed in the Gilberto Loyo Library.

The production of this book was carried out under the supervision of Eduardo Gracida and Rodrigo Núñez. Leticia Ruiz coordinated the physical preparation and printing of this volume with Ricardo Delgado in charge of the design and Juan Carlos Martínez, of the edition of the book. Sharon Dávila, Flor de María Valdivia and Francisco Javier Estrada traced original photographs and negatives in the institution’s archives, which were later scanned by Bonifacio Martínez and Francisco Javier Campos who, in an area dependent on Arturo Blancas, supported the work coming from the other administrative units.

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From INEGI's international friends, Hermann Habermann and Angela Me, as well as actors in several of the episodes narrated, participated in the inspiration for much of what is expressed here. Misha Belkindas pointed out ways to evaluate statistical capacity, as well as to disseminate the ideas contained here. Ada Van Krimpen was a source of motivation and impetus for the dissemination of this work. Others, whom I cannot mention by name for the reasons given in Chapter 11, provided information, ideas and advice that I appreciate, as well as their personal example in defending the truthfulness of information.
Catalina Miranda, proofreader and editor of previous books, provided valuable commentary and advice and Rodolfo Palma on the art of writing.

They all contributed to making this book better, the errors and imperfections that remain, despite their greatest efforts and intentions, remain the exclusive responsibility of the author.

Trudy Palma was, as always, in charge of the gathering of joy and inspiration, even more appreciated in these times of pandemic where the office and the home become one in the same.

Special Acknowledgement

Victoria Bonilla tried, at some point, to define her role in the elaboration of this book as that of a research assistant which, while true, falls short by a long way of describing the work she has done and the support I have received from her. The mere transcription of the author’s quasi-hieroglyphic handwriting would have deserved a prominent mention in this section, to which should be added the numerous readings, revisions and editions of the different versions of the manuscript, together with the concurrent suggestions on multiple aspects and topics. The research, along with the search for data and references, included ordering the quotations and the bibliography used, as well as tracing the ancient map of Mexico that began this history and that became, in turn, an exciting saga, across centuries and continents, somehow parallel to the one that is the objective of this work. Let this be a special recognition on my part to the quality of the work of a distinguished INEGI collaborator.
The two core issues of this work, namely, the need to properly measure reality and the need to do so independently of interference or consideration alien to the professionally required, are preoccupations common to all societies around the world, notwithstanding differing circumstances and political regimes. Such is the reason for this English edition, and it is my hope that the experience and history of INEGI-Mexico serves as a canvas, providing the international community of official statisticians and geographers with elements and insights for the always current discussion of these worthwhile themes.

Acknowledgements

My gratitude once again to the people and the Institution, INEGI, that made this edition and its subsequent dissemination possible. The same editorial team of the original book was involved, reinforced by Pilar García and Andrea Fernández in coordination with Celso Bailón of the administrative area, supervised by Luis Zapata and Víctor Rodríguez.

Hermann Habermann, Angela Me, Misha Belkindas and Ada Van Krimpen, international friends already mentioned in the acknowledgements of the Spanish edition were again a source of inspiration and encouragement for the idea of translating this book, to whom I must add Ada’s team at ISI through Liliana Happel, with their usual efficient support, and Pieter Everaers, Editor in Chief of the Statistical Journal of IAOS.

A book of this type with such varied areas and consequent-ly specialised jargon in the topics of Statistics, Geography, History, Law, Public Administration and Political Science all wrapped in an (aspiring) literary language to make them legible beyond each one of them, was bound to present substantial difficulties in its translation to another language.
This book and its author were fortunate to find in Alexander Smith a highly qualified translator with the extensive knowledge and shall I say, the sensitivity for realising this English translation, and with whom I could work closely regarding the difficulties and intricacies that both languages present in conveying the meaning and above all the sense of what was said from one to the other. In this labour of revision and edition once again the help of Victoria Bonilla, who read and edited the manuscript several times now in English, was invaluable. My recognition and thanks to both of you.
This book tells the story of the National Institute of Statistics and Geography (INEGI), which is the Mexican response—in these fields—to the fundamental question, shared by all human beings, of knowing and understanding the reality of the world around them.

Beyond the chronology of events contained within, I present this story from the perspective of what I consider to be the two major concerns marking the evolution of the Institute since its foundation. The first refers to the need to adequately measure the many components of reality, whether social, economic or natural. The second, crucial for public confidence and whose absence would invalidate the purposes of the previous concern, arises from the need to preserve information from any consideration other than those strictly professional at all stages of its production and dissemination.

In this sense, this work seeks to present to the reader what this eminently technical and at the same time autonomous organism is and how it has developed over time, converting the solutions to the concerns referred to not only into its objectives, but also into its defining characteristics.

Thus, this work also aspires to convey its transcendence as an indispensable institution for the nation, as its mission safeguards the right that we all share to have truthful information for our survival and well-being, as well as for the democratic life of Mexico.

The book is structured in four parts. The first part covers two basic questions in as many chapters: why do we need to carry out quality measurements and, in the national context, why is an institution like INEGI needed? The first chapter includes a historical reference to some of the main responses given by different cultures throughout the ages to this crucial human need, and the following chapter the functions and characteristics of the Institute.
The second part narrates, in five chapters, the first 25 years of the institution (1983-2008) and includes sections on the effects of some external events that have been relevant to the life of INEGI, such as the 1985 earthquake, which led to the relocation of its headquarters to the city of Aguascalientes, as well as its participation in various programmes initially outside the scope of its functions.

The third section looks at autonomy and begins with a chronicle of the political and legislative process required to achieve it, continuing with the main events and programmes that have taken place over the past 12 plus years.

The fourth part analyses the future challenges and risks that can be foreseen, from this moment, both in the technical and political aspects and in their national and international dimensions.

The COVID-19 pandemic made its appearance during the preparation of this work. As in all areas, its effects have been felt in the world of information, both in the lives of individuals and institutions. For INEGI, this led to the cancellation of its field operations in the country for several weeks and the relocation of virtually all its activities to the homes of its workers with the aim of protecting their health while continuing to provide information under complicated circumstances, moreover, data on the consequences of the pandemic on many aspects of national life were urgently required.

Consequently, I have added two postscripts to the original document with the purpose of relating the most recent events to the narrative of this work, with the limits imposed by the calendar planned for the closing of this edition. The first concludes Chapter 9, section 9.9, What is INEGI doing today?, which describes the key measures taken by the Institute in relation to its staff and the way in which it re-organised its work under the new conditions resulting from the crisis and maintained the flow of vital information for the country; it also lists the programmes - whether adapted or new - that have been implemented to provide data, particularly on the immediate effects of COVID-19.
The second postscript appears in Chapter 11, section 11.2, *The vulnerabilities of independence. Recent cases from around the world*, following up on the first mention, already included since February 2020, of the initial handling of the pandemic by the authorities in Wuhan, China, where it becomes part of an extensive gallery of terror, examining notorious cases that have occurred in various countries, which exemplify the consequences of superimposing exogenous considerations over those strictly professional in the production and handling of data.

Although, like all real-time history, it offers a relatively close view of events, this is by nature partial and limited, as the crisis is not yet over and there are not enough elements to carry out the required research and historical analysis. Consequently, this post-statement is limited to providing a broad outline of what is known up to this point, and outlines the main difficulties with respect to the handling of information that have been observed in many countries and which will require more detailed studies (and audits) in due course, once the necessary data become available in order to carry out the corresponding analyses.

**Relevant warnings**

This book, although it benefits (we hope) from the years that its author has spent working in different responsibilities within INEGI, also runs the risk of incurring in the subjectivities of those who have personally participated in some of the events narrated, so, in addition to stating this background, I offer as a remedy, especially in cases that could generate some controversy, the use and citation of existing sources and documents that support the analysis presented.

A final comment: this work aims, like some films, to be apt for all audiences. This deserves, immediately, a first clarification in the sense that it does not exclude all those who precisely do not want to see films for all audiences, among which, it is possible, there are some specialists familiar with the use of Statistics and Geography,
to whom I commit data, reviews - even anecdotes - and analysis for
the first time included in a publication of this type.

For the layman, I offer as a pledge (and preview) the following
anecdote that happened to the three members of the INEGI delega-
tion to a session of the United Nations (UN) Statistical Commission
that took place in the mid-1990s.

At that time, which already seems pre-modern for what fol-
lows, the issuance of the delegates' identifications in order to have
access to the UN facilities required their presence to have their pho-
tographs taken, which were to appear on the documents to be car-
ried at all times, unlike how it is done today, when the photograph
and the data of the accredited person are previously sent electron-
ically, and the credentials are ready for delivery before the begin-
ning of the meeting.

Here we are the three Mexican delegates in line, waiting for
our turn to be attended by one of the UN officials (clerks), each be-
hind a desk equipped with a camera that, being very modern for the
time, allowed to take and develop the images immediately, which
were quickly amended in the corresponding identification:

—Excuse me, gentlemen, which conference are you here for?
—in English and with complete formality and kindness asked
the uniformed guard, in charge of distributing the attendees
to the various events that would take place that week at the
UN, among the officials responsible for carrying out the de-
scribed procedure.
—For the Statistics conference, Sir —one of us responded with
equal formality.

Our interlocutor’s picaresque smile was followed by a (very)
loud request to one of the employees who was free at that time:

—¡Hey, John!, I am sending these gentlemen to you, please take
good care of them, the poor guys will have a very boring week;
just imagine, they are attending the Statistical Commission.
—John also couldn't help but smile.
Yet one of the group still tried unsuccessfully to babble an explanation about how wrong this assessment was:

—Laugh and take it easy, we'd better finish the registration process.

On the occasion of this publication I renew my conscience and my vows to free you, kind readers, from the gloomy fate predicted for us on that occasion by our gentle clerk.
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INEGI, GUARDIAN OF THE TRUTH

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“The most important secular commitment is to the truth, which is based on observation and evidence rather than on mere faith.”

Yuval Noah Harari
INTRODUCTION

The right to information is basic to all human beings, as it is sustained by human dignity, and its realisation is indispensable for integral personal development.\(^1\) It is the right to know and understand the reality that surrounds us, to know the truth about what is happening around us and an inescapable condition for the full observance of other human rights. It is attributed without distinction or exception of any kind, whether by age, sex, social status, nationality, or even geographical location.\(^2\) It is part of the *Universal Declaration of Human Rights* and in Mexico it is enshrined in Articles 6 and 26 of the *Political Constitution*.

The National Institute of Statistics and Geography (INEGI) is the institution to which the *Magna Carta* assigns the responsibility of producing and disseminating information that can be expressed in a statistical and geographical way\(^3\) and to which it entrusts the protection of its integrity. INEGI’s *raison d’être* is based on two major, clearly interrelated objectives. These objectives, being enshrined both in the rules that govern the institution and in the constant search for their realisation by INEGI, have become its distinctive qualities.

The first objective is to produce quality information and make it available to the public, it’s to adequately measure\(^4\) the social, economic...

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1 Comisión Nacional de Derechos Humanos, “¿Qué son los Derechos Humanos?”, CNDH - Mexico.
2 This concept underpins the right of all human beings to have accurate statistical information not only about their country, but about all the nations of the world. It also covers the right of pilots and passengers of an aircraft to weather data and to have reliable navigation charts, as well as that of academics or investors who need to know the real economic data of any country regardless of nationality or geographical residence, to name just a few examples. This is what Andreas Georgiou calls a global public good, see Andreas Georgiou, “Towards a global system of monitoring the implementation of UN fundamental principles in national official statistics”, *Statistical Journal of the IAOS* 33, (2017), pp. 389-391.
3 It excludes confidential information and information classified as national security.
4 “Measure.- Ascertain the size, amount, or degree of (something) by using an instrument or device marked in standard units.” see *The Oxford English Dictionary*. 
nomic and natural phenomena that affect the national reality. This concept is used here in its broadest sense and includes all the requirements that must be met for the information to reflect reality and be useful to society. These requirements must be met at each of the different stages involved in the production of information, from its planning to its dissemination, access and safeguarding.

In order to do so, it is necessary to use the most advanced and internationally recognised methodologies; to be exclusively governed by professional principles; that the information is published in a timely manner - in the sense that it is available quickly and that it is opportune when needed -; that a series of rules are observed providing for its dissemination and public access; that it is duly safeguarded; and that the protection of the respondents' data is guaranteed. This quality can be considered basic in the sense that it is the original function for which this type of institution exists: to provide society with information by complying with a series of requirements guaranteeing its quality and usefulness.

INEGI performs this function as a direct producer of statistical and geographical information and as the regulatory and coordinating body of the National System of Statistical and Geographical Information (SNIEG), which groups together all the government information producing agencies.

The second objective or quality of INEGI that supports its essence as an institution is its independence from public authorities through a legal statute of autonomy, protecting and guaranteeing, in turn, compliance with the primary objective of producing quality information and making it publicly available.

The need for independence arises from risks outside of the purely technical procedures for obtaining data; it is a consequence of the fact that, when measuring the social, economic and natural phenomena most relevant to a certain society, the results of the public policies of the governments responsible for addressing these issues are also measured.
The information, upon reaching the public domain, allows all citizens access to this evaluation of their government's results, as when referring to issues that are relevant to the community in social, economic or natural terms (which by definition are government issues), the mere publication of data - even often without requiring further analysis - implies an evaluation of a government action. Figures that indicate that economic growth has decreased, employment levels have improved, inflation has fallen, and crime has risen, among others, are thus judgments of the successful or deficient performance of an authority.

This is why the independence of the measurer is put before the intrinsic conflict of interest of the public policy maker when it comes to evaluating his or her results in public policy. The obligation of information producers to exclusively adhere to professional criteria is extended, for practical purposes, through a legal statute to all political actors in a society and, in particular, to those in government.

Moreover, the benefits of having this type of information go beyond the evaluation of government programmes, as this is the conduit for the formulating and proposing of public policies to individuals as well as to civil society organisations and political parties.

In other words, statistical and geographical information is an indispensable requirement for effective participation in the democratic processes of a country, which deserves to be considered as a consubstantial element to what constitutes a functional democracy, which includes, but is not limited to, voting formalities and the existence of political parties.

Producing statistical and geographical information is therefore, in essence, a democratic function par excellence opening the door for all citizens to discuss a nation's public policies and to propose and participate in their implementation. This is
what Hermann Habermann refers to when he describes statistics as the *life-blood of democracy*.\(^5\)

Consequently, although they are related and complementary, we can identify two main roles that INEGI plays: a technical one, consisting of producing quality information that reflects the reality on relevant issues, according to a series of standards and in a timely manner; and a political one, through its legal autonomy, which allows informed citizen participation in the country’s political processes.

No nation is exempt from possible interference by its governments in the area of competence of its information agencies. The recent history of related cases around the world covers a wide variety of countries and is not exclusive to the least developed, although it is these that tend to show the greatest frequency of occurrence (as we will see in *Chapter 11*, corresponding to the challenges faced by information production offices). A legal statute therefore contributes to the defence of their autonomy in a substantive way.

INEGI is an institution that provides an indispensable service for the development and democracy of our nation, and the sum of its characteristics makes it unique in both Mexico and the world. This book seeks to narrate its history: how this institution, which we can consider peculiar within the Mexican public administration and, in fact, also among its peers at an international level, has been formed over time and the diverse circumstances and events that have shaped it; as well as the challenges it has overcome and those it will face in the future.

Finally, and most importantly, this work seeks to convey, through INEGI’s exceptional characteristics, why its preservation is vital for the Mexicans of today and future generations.

SOME BASIC QUESTIONS
CHAPTER 1.

WHY MEASURE?
TO AVOID BEING EATEN,
AMONG OTHER THINGS

1.1. A little history

AN OLD MAP

This is a map of Mexico, dated 1579, appearing in an atlas published in Antwerp, Belgium, in 1608 by the engraver and editor Jan Baptista Vrients. The original author was the cartographer and geographer Abraham Ortelius (1527-1598), who is recognised as the creator of the first modern atlas, and whose map of Mexico, along with several others of his authorship, were sold by his heirs to Vrients, who took charge of publishing them.¹

Under the heading *Hispaniae Novae Sivae Magne, Recens Et Vera Descriptio 1579*, we can see that the map covers the central part of present-day Mexico. Starting from the south of Mexico City, it passes through the city and extends towards the west of the country, Guadalajara appears preceded by the *Chapalicum Mare*, it advances towards the northwest, so it would now be the state of Nayarit, with a clear view of Compostela, and it continues its way, without much care for geographical scales, until it reaches the riv-

¹ For a more detailed explanation of the origin and characteristics of this map, see *David Rumsey Map Collection*. 
er called Chiametla, the now Baluarte, in what would correspond to the southern part of the state of Sinaloa. From there it no longer registers populations, it simply has a Latin indication – warning perhaps – that “... the inhabitants of these mountains are anthropophagous...”. Note that in other areas it indicates that “... the natives are fierce or untamed people...”, here the warning is clear: they eat humans.

This map reappears in the 1665 Atlas Maior by the renowned Dutch cartographer Joan Blaeu published in Latin in Amsterdam, the largest and most expensive book published in the 17th century. It is the exact same map with only a small change in the heading: Nova Hispania et Nova Galicia instead of Hispaniae Novae as in the original.

Examining it under the essential qualities the information should contain, besides being clear, the warning was pertinent and timely, because it was adapted to the needs of the citizens of the time (at least of those who dedicated themselves to exploring), and because in that region in 1625 there were still registered massacres of Christianised Indians and of messengers sent by the Spaniards to negotiate peace, who were devoured by the Indians perhaps belonging to the tribe of the Xiximes, who were well-known for this practice.

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2 Joan Blaeu, Atlas Maior of 1665 (Colonia: Editorial Taschen, 2005) —Reprint of the original Latin edition of Amsterdam 1665 with translation into Spanish, Portuguese and Italian by the Taschen publishing house (Cologne, Germany) of the copy of the work in the possession of the Austrian National Library in Vienna (ÖNB/Kar. 389.038-F.K.); in addition to the Venetian map, it contains another of southern Mexico and the Yucatan peninsula, as well as one of the American continent; the latter shows populations in northern Mexico and Upper California, so we can assume that it was drawn up after the map of 1579. There is no reference to the production of this map by another author before Blaeu’s work. The first regulation that recognises authors as the direct beneficiaries of copyright will be the Statute of Queen Anne of England of 1710. In the 15th to 17th centuries, in some countries, the printers of a book simply paid the State for the right to publish it, see The New Encyclopedia Britannica (Chicago: Encyclopaedia Britannica, 15th Edition, 1990), Vol. 26 pp. 191-194.

3 Carlos J. Grande Rodríguez, Sinaloa en la Historia (Sinaloa: Universidad Autónoma de Sinaloa, 2000), p. 492.

It is rather astounding to consider the implications of making a map of this calibre from the chronicles of various explorers and the measurements of the accompanying cartographers armed only with the primitive technologies of the time, as well as the time it took for the information to travel great distances before reaching the workshop for final printing.

In fact, this map probably has origins much earlier than 1579, as it does not show various communities of Sinaloa that were founded at an earlier date, as is the case of San Miguel de Culiacán (1531), which Alvar Núñez Cabeza de Vaca would reach in 1536 on his odyssey on foot from Florida to Sinaloa passing through completely inhospitable territory and without any guiding instruments\(^5\) (and, incidentally, also avoiding the anthropophagous).

It is no exaggeration to say that having solid and reliable information could mean the difference between life and death due to the obvious and unpleasant risks involved for the explorers delving into unknown lands. Although these vicissitudes to reach, or avoid, such drastic results may seem unlikely to us, the dangers for nations and individuals in current times are not any less, not only referring to wars, but also to many other situations that can occur in times of peace, such as lack of attention to epidemics\(^6\) and natural disasters or the shortage of medicines, to name just a few examples, and this not only referred, of course, to extremes of physical survival, but to development and welfare in general.

The lack of understanding of our own reality - be it social or economic, natural or environmental - is one of the great risks that every society faces and, at the same time, a risk we can overcome

\(^5\) Ibid., pp. 357-364.
\(^6\) The case of the COVID-19 coronavirus pandemic, which broke out in January 2020, has unfortunately brought us a clear example of this in real time as this book is being written.
with the very intervention of institutions specialised in the production of statistical and geographical information.

The needs derived from the realities that individuals and communities face - ranging from basic survival and satisfying basic day-to-day needs to those concerning security and economic prosperity - all require reliable information. In short, we can say that, for any individual or social enterprise, information is indispensable.

Even the most primitive tribe needed to know how many individuals they had, where the nearest waterhole was and the safest way to get there, so they began to draw, perhaps first on the ground and then on animal skins, simple sketches that would allow them to guide other individuals of the same family or clan to find it.7

Thus, the disciplines of Statistics and Geography would begin to develop over time. As will be seen later on, one will be nourished by the other, as all information regarding human activities, when carried out in a given territory, is susceptible to geographical expression and all natural phenomena in terms of their effects on human events require statistical treatment.

Next, we will take a tour, in necessarily broad strokes due to the confines of this book, of events and characters that have shaped these disciplines over time.

FROM SKETCHES TO MAPS AND CHARTS: CARTOGRAPHY & GEOGRAPHY OVER THE YEARS

Returning to our history, we will first continue with a glimpse at the development of Geography and then refer to the future of Statistics.

7 The case of Major League Baseball in the United States of America (USA) is an interesting example of the use of statistics. All teams now have statistics and analysis departments staffed by professional statisticians. The film *Money Ball* (2011) shows the beginning of this trend. The sport, which lends itself particularly well to this type of measurement, has had records of every action taken in Major League games since 1876 through the so-called Box Score, invented in 1859 by Henry Chadwick, see National Baseball Hall of Fame, “Henry Chadwick”, Hall of Famers.
GEOGRAPHY

It is defined as the science of the Earth’s surface. It studies, describes and analyses the spatial variations of physical, geological and human phenomena that occur on the surface of the globe. Its development has been markedly related to the advance of Cartography, which is the art and science of graphically representing a geographic area - usually on a flat surface - that can include the addition of non-geographic elements, for example: social, political and cultural, among others.a

a The New Encyclopaedia Britannica, Vol. 19 pp. 917-926 and Vol. 23 pp. 515-537. The historical journey made here is largely based on the compilation of mapping of this encyclopaedia.

Long before the Europeans of the Age of Discovery, human-kind was developing rudimentary sketches that, over time, became maps and maritime charts gaining precision and quality as greater scientific and technological knowledge was attained.

Already the Babylonians, around 2300 B.C., made, on clay tablets, what we could consider to be the early roots of a map. The Greeks achieved great maritime developments as a result of colonisation and trade in the Mediterranean and even beyond its borders. The first hypothesis that the Earth was spherical is attributed to Pythagoras in the 6th century B.C. In 500 B.C., Hecateus of Miletus was to develop the first book of Geography and, at the same time, Herodotus - the great historian of Antiquity - was to record a circumnavigation of the Phoenicians to Africa.

Ptolemy (90-168 A.D.) particularly stands out, an astronomer and mathematician of Greek culture, who worked in the library of Alexandria, the most famous in antiquity. He wrote his eight-volume Guide to Geography, which includes instructions for making maps, and his influence extended to the time of the great discoveries, not only because of his contributions to astronomy and cartography, but also because he underestimated the size of the Earth.
Columbus made the same mistake by thinking that, upon discover-
ing America, he had arrived in India, as he imagined - influenced
by Ptolemy - that India and Cathay (China) were closer than they
actually were, without suspecting the existence of another continent
on the way.

The Romans took advantage of Greek knowledge, giving it a
more practical twist for their military enterprises, in particular to
mark the borders of the Empire and the roads that connected it.

In Europe, the earliest date of the appearance of the magnetic
compass is from the year 1187, approximately at the same time as
it appeared in China. In the following century, Louis IX of France
used the first maritime chart in the eighth crusade, carried out
in 1270.

Trade demands led to the appearance of the so-called porto-
lans, derived from the books used by the pilots of the ships, which
indicated currents, ports and adequate places for mooring. The
trips and stories of Marco Polo generated widespread enthusiasm
from the end of the 13th century to know distant countries and,
with that, for the accompanying and guiding maps.

In the Middle Ages, the Arabs maintained the Ptolemaic tra-
dition, Al-Idrisi prepared a map for the Christian King Roger of
Sicily in 1154. In Baghdad, the compass was probably already being
used before it was in Europe and in this city a part of the Earth's me-
ridian was measured around the same time.

By 1427, the Danish geographer Claudius Claussön Swart
was to publish a map of Northern Europe and some years later, in
1491, Cardinal Nicholas Kebs was to publish the first modern map
of Germany.

With the great discoveries of Columbus, Amerigo Vespucci,
Magellan, Vasco de Gama and many others, the elaboration of
maps and the development of knowledge on the subject was pro-
moted; for example, in 1554, the Flemish Gerardus Mercator (1512-
1594) published his map of Europe and developed the projection
that bears his name, which enables seafarers to indicate their location, as well as to plot straight-line courses.\(^8\)

It is here that we once again enter the era of our original story of the 1579 map of Mexico and the anthropophagi.

The practical utility of the information, compiled, little by little, in response to the needs of the age of great discoveries, led to great strides in European cartography, which, with the advancement of technologies and an ever-increasing knowledge, over time replaced the fantastic maps of previous centuries when Jerusalem was still placed in the centre of the Earth and its pages were adorned with mythological figures or imaginary human beings.

However, despite its progress, European cartography was still a ways away from the quality of Chinese cartography, which had developed over centuries. At least since the third century A.D. a system of equidistant north-south and east-west parallels was being used, which would be perfected in the tenth to thirteenth centuries during the Song period (960-1278). During that time, as a result of vast maritime exploration, significant progress was made in geographic measurement,\(^9\) which Yüeh Shih embodied in such major works as the 200-chapter *Universal Geographic Encyclopedia* published in 979 and the *Illustrated Geography of the Song Empire* completed in 1010.\(^{10}\)

Chinese achievements in cartography would continue throughout the centuries, perhaps arriving at their greatest works in the 18th century because of the strange conjunction that occurred as a result of the presence of Jesuit missionaries at the court of the K’ang-hsi and Ch’ien-lung emperors, who were distinguished by their openness and interest in science. The atlas published in 1718, named after the K’ang-hsi emperor and suggested by Father

\(^{8}\) *Enciclopedia Hispánica* (USA: Encyclopedio Britannica, 1992-3), Vol. 10, pp. 48 and 49.


\(^{10}\) Ibid., p. 340.
Jean-François Gerbillon, was the result of measurements made from 1707 to 1717 and is considered superior to contemporary European maps. The atlas taking the name of the Ch’ien-lung emperor was published in 1769 as a result of measurements made between 1756 and 1759.\(^\text{11}\)

Over time, due to the increased importance for external state security, the production of maps became a function increasingly related to the military forces – who assumed this responsibility - and, in many cases, the production of maps would be considered a state secret.

In France, the *Dépôt de la Guerre* (created in 1688 by Louis XIV) was the cartographic and archival office of the French Army, a body that, under various names, survived the French Revolution, and not surprisingly, rose to great importance in the Napoleonic era. It was said that the Emperor, upon sensing that one day he would invade a country, even years in advance, commissioned his librarian to write books on the economy and cartography of the country to study them personally,\(^\text{12}\) and he was famous for the acuity of his memory for statistics according to the accounts of his contemporaries.\(^\text{13}\) At that time, this office would have 90 geographic engineers at its disposal, who drew up the cartography not only of France, but of several of the conquered territories as part of the great project of a European map that never came to fruition with the fall of Napoleon.

In 1830, the *Dépôt de la Guerre* was reorganised to draw up the so-called *Grand Charte de France of the General Staff* (*Carte de l'état-major*), a name that revealed the end of its use and finally became the National Institute of Geographic and Forestry Information in 1940 (*Institut National de l’Information Géographique et Forestière*).\(^\text{14}\)

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11 Ibid., p. 540.
13 Ibid., p. XXXVI.
The move to civilian geographical institutions is more recent and, in many cases, overlapping military and civilian activities in map production is commonplace within the same country, even to this day. However, there are early examples of civilian administration offices in charge of geographic and cartographic activities, for example, the *Ordinance Survey* of Great Britain, which was founded in 1791 and produced its first map in 1801, probably the first state office in the world of non-military geography.\(^{15}\)

In Switzerland, the “Bureau topografique fédéral” (now the Federal Office of Topography or *Swisstopo*) was founded in 1838. It published the first page of its official series of topographic maps of the country at a scale of 1:100,000 in 1845, which it completed in 1865 upon covering the entirety of its territory.\(^{16}\)

In Mexico, efforts to establish civil geographic institutions date back to the first third of the 19th century. Already in the 1824 *Constitution*, under Articles 2 and 50, Section V, discussed the need of delimiting the national territory and the states and territories. In 1833, the National Institute of Geography and History was founded by Lucas Alamán and Andrés Quintana Roo, with the goal of building the first *Letter of the Republic* - which they published in 1850 - and to undertake national statistics with the purpose of analysing the country’s main problems and proposing solutions to them for the consolidation of Mexico as an independent nation. In 1851, with Valentín Gómez Farías and Benito Juárez, the Institute changed its name to the Mexican Society of Statistics and Geography (SMGE), the first institution focused on research, development and the practice of geography that was established in America and the fourth institution worldwide.\(^{17}\)

It is interesting to recount that in Mexico, Porfirio Díaz, during his so-called Tuxtepec Revolution - at the beginning of the campaign in the Bajio region in 1876 -, received through Vicente Riva

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15 *Ordinance Survey*, “History”, About us.
Palacio and thanks to the help of Ignacio Altamirano, then Minister of the SMGE, a tube containing a map (by the famous Mexican cartographer Antonio García Cubas), an itinerary of the roads of Mexico (by José Saviñón y Lozoya) and a sheet of statistics prepared by Manuel Rivera Cambas.\textsuperscript{18}

It was García Cubas himself who a few years earlier, in 1858, published his \textit{Geographical, Statistical and Historical Atlas of the Mexican Republic}, whose second facsimile edition is still in the country’s bookstores today.\textsuperscript{19}

The successful and then popular general was approaching upon the most accurate information available at the time. Aware of its importance, the Porfirian regime promoted the creation of the National Astronomical Observatory (1876), the Geographical Exploratory Commission (1877) and the Meteorological Observatory (1877).\textsuperscript{20}

In 1879, the U.S. Congress created the \textit{U.S. Geological Survey} by merging the four survey commissions that had been charged with the task of mapping the unexplored parts of the country. It was assigned the inventory and classification of public lands, the analysis of its geological structure, mineral resources and products of public domain as specific functions. The creation of this agency was prompted by the need to inventory the vast public lands added to the United States by the purchase of Louisiana in 1803 and as a result of the Mexican American War in 1846-1848.\textsuperscript{21}

\begin{thebibliography}{99}
\bibitem{19} Antonio García Cubas, \textit{Atlas geográfico, estadístico e histórico de la República Mexicana 1858} (Mexico: Segunda Facsimilar Miguel Ángel Porrúa. Edited in collaboration with El Colegio Nacional, INEGI & el Instituto de Investigaciones Históricas de la UNAM, 2015).
\end{thebibliography}
CARTOGRAPHY & GEOGRAPHY AT THE INTERNATIONAL LEVEL

In general, at the international level, it isn’t until the Second World War that cartography really takes off. At that time, it is estimated that up to 90% of the planet lacked an appropriate cartography according to the technical standards necessary to produce aeronautical charts. From the war, aerial photography begins to be used intensely, which, with multiple other technological advances and the eventual use of satellites, would contribute to the development of the Cartography of the last few decades.

It is worth noting the work done by various geographical associations, which have had a great effect on the international development of the subject; examples are the American Geographic Society, the National Geographic Society and the Royal Geographical Society of the United Kingdom. The latter has financed important expeditions worldwide, such as the discovery of the sources of the River Nile in the 19th century (by Stanley and Livingstone), explorations of the Arctic and Antarctica, and the conquest of the summit of Everest.

At the international level, several associations promote the development of Geography worldwide: the International Association of Geodesy (1862); the International Society for Photogrammetry and Remote Sensing (1910); the International Union of Geodesy and Geophysics (1919); the International Hydrographic Organisation (1921) based in Monaco which produces the world bathymetric chart; the Pan American Institute of Geography and History (1928); the International Air Transport Association (1945) with headquarters in Montreal; the Inter-American Geodetic Survey created in 1946 with headquarters originally in Panama and, since 1980, in San Antonio, Texas; the Geospatial Information Section of the United Nations (formerly the Cartographic Section) founded in 1951; and finally, the International Cartographic Association,

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founded in Berne in 1959, whose mission is to promote cartography and geographical information sciences (GIS) in the international arena and which groups together governmental geographic production offices as well as national cartographic societies.

The United Nations Economic and Social Council, by resolution of July 27, 2011, recognises the need to promote international cooperation in the field of geospatial information and establishes the Committee of Experts on Global Geospatial Information Management (UN-GGIM).23

FROM TABLETS TO CENSUSES AND SURVEYS: STATISTICS THROUGH THE AGES

The vicissitudes of statistics have been no less fascinating and arise from, as in the case of geography, on the rudimentary survival needs of the first organised human groups. This lesson has been understood since Antiquity by the various peoples who, as soon as they acquired minimum levels of organisation as a society, resorted to obtaining information that would support them in their objectives.

Statistics, by no coincidence, is closely linked to the concept of the State and its need to organise itself for its development, defence, expansion, welfare, security, and so on. The greater or lesser capacity to produce information will always be associated with the level of development that a community achieves.24 It would be a sign of the urbanism brought about by the early days of civilisation.

“STATISTICS, BY NO COINCIDENCE, IS CLOSELY LINKED TO THE CONCEPT OF THE STATE...”

24 The term statistics refers in the 19th century to the information service provided by the State. Melchiore Gioja, in his work *Filosofia della Statistica*, states “…Statistics means the description of the qualities that characterise a State […] or the elements that make it up, describing the economy, education, welfare, justice and government, culture, international comparison…”, see Gioja Melchiorre, *Filosofia della Statistica* (Turin: 1859), cited by Alberto Ortega & Venzor, “El Descubrimiento de la Realidad por la Estadística y la Geografía”, *Academia*, 2015, p. 5.
The *Oxford English Dictionary on Historical Principles* dictates that the word *Statistics* can be found as early as 1787 and is defined as the following: “… In early use, that branch of political science dealing with the collection, classification and discussion of facts bearing on the condition of a state or community. In recent use, the department of study that has for its object the collection and management of numerical facts or data, whether relating to human affairs or to natural phenomena…” a

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As primitive states advanced we saw the appearance of more complex structures, more populated cities, even empires and rulers, and in order to be successful, they required a more complete knowledge and better understanding of their reality, of their human and economic resources, of their environment, of the climate, of their adversaries, and so on. Ignoring this or failing to have timely and reliable information would be at their own risk.

Although it would go beyond the scope of this book to make an exhaustive analysis of the historical development of Statistics - and Geography -, a small number of examples will suffice to illustrate the importance that the most visionary societies and leaders have had in obtaining useful information for their plans and endeavours.

Already in Babylon, 4 thousand years ago, clay tablets were being used to count people, inventories of goods and food, as well as loans, rentals and purchases.25 In Egypt, lists of families, profes-

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sions and sources of income were made in the 6th century BC.\textsuperscript{26} In the Hebrew scriptures of the Bible, known as the Old Testament, there are mentions of censuses in at least two books: in the Book of Numbers 1.1-54 and 26.1-65 and in 2 Samuel 24.1-25.

In the first case, Moses is instructed to count the tribes of Israel, a census by clans with each man recorded individually; the resulting figure was very high (603,550) probably because the Hebrew translation of thousands could refer to a subsection of one tribe. The second account in the Book of Numbers is later and occurred after a plague had afflicted the Israelites. Each man over the age of 20 was counted as being fit to go to war according to his ancestral homes, but also to be assigned land.\textsuperscript{27}

In the narrative of the second book of Samuel, in David’s time, he orders a census, with prior instructions as to the places where it would be carried out; once again, the numbers were very high (1,300,000 men fit to fight); furthermore, it specifies that there was opposition to its carrying out for religious reasons that remain unclear.\textsuperscript{28} In any case, these biblical references are important for the simple fact that they constitute written testimonies of the carrying out of censuses, they also provide significant data of their use in measuring the strength of their armies and the distributing of lands that, according to the customs of the time, seemed to focus on men of a certain age as a point of reference.

In the New Testament a well-known reference appears in the Gospel of St. Luke, that by a decree of the Roman Emperor Augustus (27 BC-14 AD) a universal register was to be completed: Joseph has to travel, from Nazareth to Bethlehem, to register in the city of their ancestors, since he was a descendant of David, and that’s when Jesus was born in the city of Galilee.\textsuperscript{29}


\textsuperscript{27} The New Oxford Annotated Bible with the Apocrypha. An Ecumenical Study Bible (New York: Oxford University Press, 1991), p. 164 OT-165 OT and 202 OT-203 OT.

\textsuperscript{28} Ibid., p. 420 OT-421 OT.

\textsuperscript{29} Ibid., Lucas 2.1-40, p. 79 NT-80 NT.
That register or census was carried out under the aegis of the Roman Empire, not surprisingly due to their long tradition with statistical undertakings. Thanks to the written compilations of Roman Law that covered all areas of the activities of this society, we have received an abundance of information regarding the importance that the census held for them.

The establishing of a census is attributed to King Servius Tullius (who ruled from 578 to 534 B.C.) by which every head of family should be registered, declaring the name and age of his wife and children, as well as the amount of his fortune, including his slaves. The census had to be renewed every five years.\textsuperscript{30} This information was used to constitute the army, the elections and the payment of taxes. It was reserved as a function of the supreme authority during the monarchy that passed to the consuls during the republic. Finally, due to its complexity, the conducting of the census required a management unit, that is, an administrative office in charge of statistics. In 443 B.C. an ordinary, non-permanent magistracy was created: the censorship.\textsuperscript{31}

With time, this position acquired more responsibilities until it settled, without the possibility of appeal, on the political and honorary rights of citizens.\textsuperscript{32} This is probably where the other meaning of the word \textit{censor} originates: in addition to being the office that carries out the census, it also censors the actions of citizens. This office was to acquire great power over time, as it was responsible for deciding on the awarding of public works contracts.\textsuperscript{33}

Thus, since the early years of Rome, its civilised citizens carried out censuses and created the institution of the censor. However, as the years went by and due to the aristocracy’s opposition to the paying of taxes, the census lost effectiveness, and by the time

\begin{footnotesize}
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\item Ibid., p. 133.
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of Julius Caesar (100-44 B.C.) it was practically inoperative. It fell to Caesar’s genius to restore it and extend it across the whole empire.\footnote{Teodor Mommsen, \textit{A History of Rome} (Jordan: The Folio Society, 2006), p. 698.}

Caesar had, what must have been, an enlightening experience in Gaul, of which we know because he has been one of the few great leaders throughout history - along with Marcus Aurelius and Winston Churchill - combining his military triumphs with having left a self-written legacy of his campaigns. And it was to his great surprise, that his lieutenants showed him some manuscripts in Greek that they had found in the camp of the Celtic tribe they had just defeated.

We are in the year 58 B.C. in the depths of Gaul and what is presented to the great Roman general is an unusual discovery, especially coming from the supposed barbarians, at least in the eyes of the sophisticated Romans: it is a census, but not just any census, this measures the entire Helvetian population; men, women, children and the elderly, a total of 368 thousand people. It identifies by name the 92 thousand warriors fit to fight. It was the result of three years of planning that led this entire tribe to move from their lands (in what now corresponds to Switzerland) to French Gaul with the aim of conquering other Celtic tribes and taking over their territories. The information, moreover, had included as part of that process a survey regarding the livestock, the crops, the food they would take with them, as well as the infrastructure that was being abandoned.

It was, in itself, a population, economic and agricultural census, clearly much more complete than those of the Romans at that time, and as was referenced by Julius Caesar himself, probably the largest statistical document (demographic and economic) of antiquity. We will only find a testimony of this magnitude in the \textit{Domesday Book} of the Middle Ages. We can marvel at how that census was carried out and, in general, at the planning process involved in undertaking this mammoth task with an entire society. The great beneficiary of this information ended up being Julius
Caesar, or rather Rome, because in the subsequent peace agreement the Helvetians were forced to return to Switzerland to form a barrier against the Germanic barbarians on the other side of the Rhine river, who had already been threatening Rome’s borders.\textsuperscript{35}

In fact, the level of social organisation of the Celts, in general, was far from the image of barbarism that the Romans tended to attribute to other peoples, particularly those of Germanic identity, as they had largely developed an urban civilisation, minted money and practiced intense trade with other civilisations. The connection with Greek culture, the most advanced at the time, is evident in the language in which the data of their great census was written, although we may never know the names of the foreign experts who probably advised them.

The lessons derived from the document of this census were surely imprinted in the mind of Julius Caesar, because years later, already victorious in civil wars, with the title of dictator that would take him to his early grave, he decided to reintroduce the census in the Empire extending it from Italy to the other domains and, in this way, to gain knowledge and eventual access to the resources of men and taxes at his disposal.\textsuperscript{36} It is this census that Octavian Augustus would operate in Palestine in the beginning of the Christian Era.

DOMESDAY

Statistics continued developing through the ages. In 11th century England a remarkable document was compiled, the so-called \textit{Domesday Book}.\textsuperscript{37} This was the result of the search ordered by William the Conqueror in 1086 in which detailed information was gathered on all the properties that existed in his new kingdom including who owned them, their dimensions, agricultural capac-

\begin{itemize}
\item \textsuperscript{36} Mommsen, \textit{A History of Rome}, p. 698.
\item \textsuperscript{37} \textit{Domesday} is the ancient spelling of the modern word \textit{Doomesday}, holding the same meaning, see \textit{The Shorter Oxford English Dictionary on Historical Principles}, op cit.
\end{itemize}
ity, number of workers and infrastructure, and their value. It is not only an outstanding national cadastre, but also an invaluable historical and geographical source in understanding the development of towns and cities in that country, there being nothing comparable, worldwide, in the previous or following centuries. It was called doomsday because once completed, there would be no appeal on its results.

It was carried out in the midst of a crisis caused by the invader’s need to consolidate his regime - settling feudal disputes with the ancient Saxon inhabitants and the Norman nobility - as well as the need to know the wealth of his vassals from which the wealth of the kingdom and of the king himself was derived. It was a cornerstone of England’s social and political development and structure and, beyond its borders, is considered the most relevant administrative achievement of the Middle Ages.

PIONEERS

Among the most outstanding personalities when considering the development of statistics, we find the following:

John Gaunt (1620-1674), considered the founder of Demography. He carried out studies on vital statistics of the London population. When classifying causes of death, he found that although more individuals are born male, this is compensated by a higher degree of mortality, so the population is balanced between both sexes. He also studied survival or life expectancy from statistical observations.

Adolphe Quetelet (1796-1874), Belgian mathematician, astronomer, statistician and sociologist. He stood out for his applications of statistics and probability theory to social problems. He

studied statistics on crime and mortality and developed methods to improve census taking. In Brussels, he organised the first International Congress of Statistics, the predecessor of the International Statistical Institute (ISI), in 1853.

The British Francis Galton (1822-1911) - a pioneer in correlational calculus and Eugenics as in the physical and mental improvement of human beings - and Karl Pearson (1857-1936) - who was influenced by Galton and studied the application of statistics to problems of heredity and evolution - are considered the fathers of modern statistics. They developed the basis of Inferential Statistics whose concepts and techniques (such as correlation, bivariate normal distribution, linear regression, among others) are today essential in almost all domains of scientific research (Medicine, Biology, Economics, Psychology, etc.).

In 1854, Dr. John Snow (1813-1858) saved thousands of lives in London after a cholera outbreak around Soho. His research consisted of surveying the largest possible number of people, which would lead him to conclude that water contaminated by sewage was the cause of the disease. His method was later recognised as the birth of the difference-in-difference (DD) statistical technique, an econometric tool useful for drawing causal inferences.

The first case of cholera in England had been reported in 1831 and epidemics were repeated every few years. At that time, water did not reach homes through pipes and people used communal pumps and local wells for drinking, cooking, and washing. Septic systems were primitive, and people dumped untreated sewage directly into the River Thames. Snow noticed that cholera outbreaks were greatest within a 250-yard radius of the community pump location.

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42 Dana Tulodziecki, “A case study in explanatory power: John Snow’s conclusions about the pathology and transmission of cholera”, *Studies in History and Philosophy of Biological and Biomedical Sciences* 42 (2011), pp. 306-316.
cated on Broad Street. By surveying most of the people living around Soho, and using a geo-referencing scheme, he identified that those who had ingested water from the Broad Street pump, whose source was the Thames, were more likely to die of cholera than those who drank from local wells, whose source was not the Thames.

In September 1854, John Snow convinced local authorities to close the Broad Street pump. From that date on, cholera deaths dropped dramatically thanks to the detailed data collection he carried out, which ruled out, as was then believed, that cholera was transmitted through environmental factors.43

Florence Nightingale (1820-1910), in addition to having been a pioneer in the nursing profession around the world, made great contributions in the area of statistics. During the Crimean War (1853-1856), she was superintendent of nurses, where she realised that the mortality rate among British soldiers was higher due to poor sanitary conditions than to injuries of war. She collected data on the deaths of British soldiers before and after she and her team of nurses took certain health measures in the hospitals where they served, significantly reducing the mortality rate from 42% to 2%.44

In 1856, upon her return to London, she developed the polar area diagram (also known as the Nightingale Rose diagram), a graphic representation of the collection of causes of death that she directed to members of the British Parliament to reform health conditions in hospitals, which were carried out shortly thereafter and were instrumental in creating the British Red Cross in 1870. In 1859, Nightingale was elected as the first woman member of the Royal Statistical Society of the United Kingdom and later as an honorary member of the American Statistical Association (ASA).

The British Ronald Aylmer Fisher (1890-1962) pioneered the use of statistical methods to conduct scientific experiments. He created the concept of analysis of variance by which more than one factor can be altered at the same time in an experiment.

The work of these scientists directly influenced the development of the world’s statistical offices, as it provided them with tools to better do their job, particularly in the field of probabilistic surveys, which were fed by their research to achieve high levels of precision in their estimates. Likewise, the scientific community would increasingly make use of the information produced by official statistical agencies, while at the same time pressing for an increase in quality.

THE STATE ORGANISES ITSELF TO COLLECT INFORMATION

It is not surprising that the great leaders of mankind, throughout the ages, have understood the importance of having solid and reliable information for projects they were undertaking. Rather, we could claim that this understanding was one of the causes of their success and even of their greatness, when greatness could be claimed. Kings, pharaohs and emperors left, as we have seen, evidence of this concern that extended through the ages.

Modern states soon discovered their own need for information on a wide variety of subjects, that it needed to be produced in a permanent manner that would ensure its timeliness, and that, by its very nature, the information was not only complex, but so were the processes for obtaining it.

Organising censuses involves mobilising armies of people, but also a process of planning, logistics, analysis and data synthesis. It also requires highly specialised personnel who can operate these programmes. In addition, methods based on mathematical advances were gradually appearing allowing data to be estimated without resorting to measuring the entire population or the economy, leading to the development of probability surveys.
Thus, the first central statistical institutions, precursors of today’s national statistical agencies, began to operate, not surprisingly, in some of the most advanced countries, including some not yet politically constituted as such. These are the cases of Italy, where a Bureau of Statistics was established in 1807 under Melchiorre Gioia, and the first statistical office in Poland in 1810; promoted by Adolphe Quetelet, in 1826 the Bureau de la Statistique was inaugurated in Belgium, as part of the Ministry of the Interior, which was charged with organising the 1829 census; in 1833 the General Statistical Office was created in France within the Ministry of Commerce, which took the name of General Statistics of France (Statistique Générale de la France) in 1840; in 1836 in the United Kingdom the Office of the Registrar General was established, which in 1841 would be in charge of carrying out the population census of England and Wales; in Spain, by decree of the Council of Ministers of Queen Isabella II, the Statistical Commission of the Kingdom was created in 1856, which would be called the Board of Statistics in 1857 and had as its first responsibility the elaboration of the Population Census of that same year.

In Mexico, the Constitution of 1824, besides pointing out the need to delimit the territory, in Article 12 establishes that a population census would be carried out in the five years following its promulgation, which should be completed, subsequently, every 10 years. After two unsuccessful attempts of taking a census, in 1831 the so-called Valdez Census was carried out, named after Don José Valdez who was in charge of its elaboration and despite its limited

50 Instituto Nacional de Estadística, “El nacimiento de la estadística oficial y la creación del INE. Breve reseña histórica”.
results - since it didn’t manage to cover all the entities and population of the country - it became the first census baseline of independent Mexico.\textsuperscript{51}

Previously, towards the end of the Colonial rule, in the years 1790 and 1791, the Revillagigedo Census was carried out by order of Viceroy Juan Vicente Güemes Pacheco de Padilla, second Count of Revillagigedo, who governed New Spain from 1789 to 1794. Its’ purpose was to create a complete census of the population living in the territory’s jurisdictions, identifying the number of families, their members and their occupations, characteristics of the housing, etc. Although its results were incomplete and some of them criticised, this census constitutes a valuable document in understanding the Mexico of that time.\textsuperscript{52}

Also, towards the end of colonial rule, the German explorer Alexander Von Humboldt, during the years 1803-1804 travelled through Mexican territory. As a result of this trip he integrated a vast collection of plants and worked on determining geographic coordinates and daily observations of temperatures and barometric pressure, as well as gathering statistical information on the economic and sociodemographic conditions of Mexico. His results were reported in the 30 scientific volumes he published in Paris during 1804-1827 and in his \textit{Political Essay on the Kingdom of New Spain}, published in 1827.\textsuperscript{53}

Mexico’s General Directorate of Statistics (DGE) was created in 1882 during the presidency of Manuel Gonzalez, depending on the Ministry of Development, Colonisation, Industry and Commerce. It is no coincidence that this ministry was crucial for the country’s development and that Porfirio Díaz himself occupied this portfolio at the beginning of González’ government, although he had already left it to become the governor of Oaxaca by the time DGE was founded.

\begin{footnotesize}


\textsuperscript{53} \textit{The New Encyclopedia Britannica}, Vol. 6, pp. 140-141.
\end{footnotesize}
The initiative for its creation came from Antonio García Cubas, author of the famous atlas referred to in the part of the history of Geography, and it was sponsored by general Carlos Pacheco, minister of Development; its first director was Antonio Peñafiel and under his charge the population censuses of 1895, 1900 and 1910 were carried out. This office would undergo a series of name changes and assignments to different departments over time and will eventually form an essential part of INEGI when it is founded in 1983.  

In 1922, the DGE became the Department of National Statistics directly responding to the presidential office, as such its offices were located in Castillo de Chapultepec and, in 1932, it became the General Directorate of Statistics under the Ministry of Economy.

Federal laws on statistics were issued in 1940 and 1947, and in 1980, the Law on Statistical and Geographical Information, which contemplated, for the first time, the two disciplines together.

GOING BEYOND JUST COUNTRIES: INTERNATIONAL DYNAMICS

Little by little, an international community has grown that began to meet to discuss common issues and to promote the development of statistics at a global level.

Among the most outstanding events, as we have mentioned, is the First International Congress of Statistics in Brussels (1853) convened by Adolphe Quetelet, which is the predecessor of the ISI, created in 1885 with 81 members from both academia and official statistics departments, which was established in The Hague, Holland, and has distinguished itself over the years as the most important organisation in bringing together the world’s statisticians.

54 INEGI, *Estadísticas históricas de México* (Mexico: INEGI, 1990). It contains a summary of the main historic events in the development of Statistics in Mexico since prehistoric times.
In the 1990s, it played an important role in the creation of the global classification of diseases and has participated in most of the important developments in statistics. Since its inception, every two years - interrupted only by the world wars - it holds the World Statistics Congress with the attendance of several thousand statisticians from all over the world. The most recent one was held in 2019 in Kuala Lumpur, Malaysia, and the next one, in 2021, will be at its headquarters in The Hague.

The ISI has seven associations: the International Association for Official Statistics (IAOS), the Bernoulli Society for Mathematical Statistics and Probability (BS), the International Association for Statistical Computing (IASC), the International Association of Survey Statisticians (IASS), the International Association for Statistical Education (IASE), the International Society for Business and Industrial Statistics (ISBIS) and the International Environmetrics Society (TIES). The current director general of ISI is Ada Van Krimpen, who is in charge of the organisation of the world statistics congresses and the administrative support of the ISI’s sister associations.

In 1940 the Inter-American Statistical Institute (IASI) was founded, which held the First Inter-American Congress of Statistics in Washington in 1947. It was the forerunner of the Inter-American Statistical Conference (ISC) that the Organisation of American States (OAS) held from 1950 (Bogotá) to 1990 (Aguascalientes). From that year onwards, the ISC was organised jointly by the OAS and the Economic Commission for Latin America and the Caribbean (ECLAC) until 2001, when it was transformed into the Statistical Conference of the Americas (SCA) and its Secretariat was taken over by ECLAC under the format of the Regional Economic Commissions of the United Nations (UN).

World War II, like any large-scale war, increased the urgency for timely information for states at war. Winston Churchill had the Bureau of Statistics report information directly to him, on an ongoing basis, that he would use in planning the Allied effort in the war against the Axis powers. In 1941, he established the United Kingdom’s Central Statistical Office to ensure consistency among official statistics. In his own words, this was done “... to consolidate
and make sure that agreed figures only are used. The utmost confusion is caused when people argue on different statistical data… The various Departmental statistical branches will, of course, continue as at present, but agreement must be reached between them and the Central Statistical Office.”

This war also saw one of the most unfortunate events in the history of statistics when the Nazis used censuses to track people they considered enemies of the state, as was the case with the Jews in Holland.

At the end of the Second World War, the UN was founded, replacing the failed League of Nations created at the end of the first world war. In 1947, the United Nations Statistical Commission (UNSC) was established, which meets annually, every March in New York.

The UNSC is the highest body of the global statistical system. It brings together the heads of national statistical offices (NSOs), while inviting guests from other international organisations active in statistics, such as the Organisation for Economic Cooperation and Development (OECD); the Statistical Office of the European Union (Eurostat); the World Bank; organisations of the UN itself, such as the United Nations Development Programme (UNDP); the United Nations Industrial Development Organisation (UNIDO); the United Nations Office on Drugs and Crime (UNODC); the Regional Economic Commissions; the United Nations Educational, Scientific and Cultural Organisation (UNESCO); and professional associations such as the ISI.

At the UNSC, the main current statistical topics are discussed and working groups are organised to aide international cooperation on various subjects. It has played a crucial role in the development of statistics in general in recent years. The adoption of the Funda-

mental Principles of Official Statistics in 1994 stands out, which, with a revision of their preamble, were approved by the United Nations Economic and Social Council (ECOSOC) in 2013 and unanimously adopted on January 29, 2014 by the UN General Assembly.

The United Nations Statistics Division (UNSD) is responsible, among other activities, for compiling and disseminating global statistical information, developing norms and standards that promote quality and international comparability, and supporting the strengthening of countries’ national information systems. It provides the secretariat service to the UNSC, organises its execution every year and supports the actions determined by its plenary.

In recent years, both the UNSC and the UNSD have taken the lead in advancing the Sustainable Development Goals (SDGs) 2030 with a broad programme to establish global indicators to monitor progress on each of the 17 goals set by the UN, which will be discussed in the following section.

Virtually all international organisations have an area of statistics within their structure, reflecting the importance of having high quality statistical information at the global level. Currently, two coordination groups are operating in these areas: one for the agencies of the United Nations System and another for external agencies. Both groups, in turn, coordinate with each other, holding joint working meetings to analyse the development of statistics at the global level.

1.2. Modern day complexities. The Sustainable Development Agenda 2030

As we have seen throughout history, different societies and their leaders have recognised the importance of having reliable information pertinent to their needs. In recent centuries, this has led to the creation of government agencies specialised in either statistics or geography, with only two exceptions that bring both functions together under one institution: The Brazilian Institute
SOME BASIC QUESTIONS

of Geography and Statistics (IBGE) and Mexico’s INEGI, which recognised early on the synergy between these two areas.56

These agencies provide a service of public interest by producing their country’s official information (whether statistical or geographic) and making it available to society. This information is, in itself, a public asset in the sense that it belongs to the community and does not exclude any individual from its use, and in consequence must be provided by the State to ensure equal access for all.

This definition of information as a public asset reflects the importance of the State having a key role in its production and making it available to all citizens. This function is an indispensable element of democracy, as it allows an entire society to know and understand the situation of its country on a wide range of issues, to be in a position to evaluate it, and even to participate in the broader discussion of public policies, including their formulation and implementation. This is why information-generating agencies must be subject to a series of rules for their production, dissemination and access that guarantee the fulfilment of this function.

Today, the increasing complexity of the challenges facing modern societies requires information that responds in its variety, quality and timeliness in a manner that is proportional to the size and complexity of these. To this end, agencies need to carry out multiple and increasingly sophisticated programmes to be able to obtain the information their countries need in practically all areas of human activity, as well as their geographical and environmental surroundings.

These should include different types of censuses (population, economic, agricultural and government), a wide variety of surveys to measure different aspects of life, as well as the collection of administrative records from numerous sources and field work sup-

56 The IBGE was created in 1934 under the name of the National Institute of Statistics; acquiring its current name and functions in 1937 when it joined the Brazilian Geographical Council, see the Brazilian Institute of Geography and Statistics, “The IBGE”, Institutional.
ported by aerial photographs and satellite images, at least where Geographical data is concerned.

The programmes can only be carried out with trained and experienced staff and the use of state-of-the-art technologies. This implies that, in order to fully cover these functions, the State will have to allocate, as a priority, adequate budgetary resources to carry out these programmes.

The United Nations’ Agenda 2030 for Sustainable Development, as probably the most ambitious concerted development effort by the largest number of countries in history, offers us a magnificent reference on the wide range of information needs that nations face today.

The Agenda was approved by the 193 members of the UN as a result of the UN Summit on Sustainable Development held in New York on September 25, 2015. The final document is entitled Transforming our world: The Agenda 2030 for Sustainable Development and includes 17 SDGs, that are:

1. Ending poverty in all its forms around the world.
2. Ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture.
3. Ensure a healthy life and promote well-being for everyone at all ages.
4. Ensure inclusive, and equitable quality education and promote lifelong learning opportunities for all.
5. Achieving gender equality and empowering all women and girls.
6. Ensure the availability and sustainable management of water and sanitation for all.
7. Ensure access to affordable, safe, sustainable and modern energy for all.

8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and encourage innovation.
10. Reduce inequality within and among countries.
11. Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to combat climate change and its effects.
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. Manage forests sustainably, combat desertification, halt and reverse land degradation and halt biodiversity loss.
16. Promote, peaceful and inclusive societies, provide access to justice for all and build effective, accountable and inclusive institutions.
17. Strengthen the means of implementation and revitalise the global partnership for sustainable development.

A total of 169 targets were set for these objectives, reflecting the great challenges faced in 21st century development. It was clear from the outset that monitoring the progress of these goals would require statistical information that, in many cases, simply did not exist and, in others, would require substantial adjustments or improvements to existing capacities. In many countries, it has been necessary to undertake new programmes, particularly administrative record collection or surveys to ascertain the status of each objective.

Since the discussion prior to the approval of Agenda 2030, the UNSD has played a relevant role in detecting data requirements.

58 These goals can be consulted on the web page regarding the Sustainable Development Goals of the United Nations.
and designing a programme to support countries in their information production needs. One of its main activities is to monitor the Agenda through a reference framework on indicators and statistical information. It is here that Agenda 2030 was adopted as a priority for statistical offices around the world.

While the range of these goals is extensive, having grouped them all under the title of SDGs offers countries a reference point or focus for their development efforts and provides them with a convenient list and a way of monitoring what remains to be achieved in each of the issues it addresses.

Internally for the NSOs as producers of information and coordinators of the statistical systems of their countries, it offers them the opportunity to increase their information producing capacity as part of a global effort coordinated by the UN.

1.3. The Fundamental Principles of Official Statistics

The Fundamental Principles constitute the basic reference framework for all statistical activities carried out by national and international organisations. INEGI extends its application to the geographic information it produces.

They were initially developed and adopted by the Conference of European Statisticians in 1991 and by the United Nations Economic Commission for Europe in 1992. The shift from the planned economies of Central and Eastern Europe to market democracies in the late 1980’s, intensified the need to ensure that national statistical systems could produce appropriate and reliable information according to internationally accepted professional and scientific standards, bringing about the creation of the said principles.

It soon became clear to statisticians around the world the importance of applying these principles globally, so their discussion was taken to the UNSC, which adopted them at its special session on April 11-15, 1994.
The issue was discussed again at the 42nd session of the UNSC in 2011, where it was considered that, while they remained valid and did not need to be changed, it was appropriate for the Preamble to be revised by a Friends of the Chair to take into account the possible changes that had occurred between 1994 and 2011.59

At its 44th session in 2013, the UNSC adopted the revised Preamble and recommended that ECOSOC approve a resolution on the subject, which was subsequently accepted by ECOSOC on July 24, 2013, endorsing these principles and recommending them to the General Assembly for adoption.60

The General Assembly, in which all UN member countries are represented, approved the Fundamental Principles by unanimous vote in its resolution 68/261 of January 29, 2014.61

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**The Fundamental Principles of Official Statistics***

The general assembly,

Recalling recent resolutionsa of the General Assembly and the Economic and Social Council highlighting the fundamental importance of official statistics for the national and global development agenda,

Bearing in mind the critical role of high-quality official statistical information in analysis and informed policy decision-making in support of sustainable development, peace and security, as well as for mutual knowledge and trade among the States and peoples of an increasingly connected world, demanding openness and transparency,

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Bearing in mind also that the essential trust of the public in the integrity of official statistical systems and its confidence in statistics depend to a large extent on respect for the fundamental values and principles that are the basis of any society seeking to understand itself and to respect the rights of its members and, in this context, that the professional independence and accountability of statistical agencies are crucial,

Stressing that, in order to be effective, the fundamental values and principles that govern statistical work have to be guaranteed by legal and institutional frameworks and respected at all political levels and by all stakeholders in national statistical systems,

Endorses the Fundamental Principles of Official Statistics, set out below as adopted by the Statistical Commission in 1994 and reaffirmed in 2013, through the adoption of resolution 2013/21 by the Economic and Social Council, on July 24, 2013:

The Fundamental Principles of Official Statistics

**Principle 1. Relevance, equal access & impartiality**
Official statistics provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honour citizens’ entitlement to public information.

**Principle 2. Professional standards, ethics & scientific principles**
To retain trust in official statistics, the statistical agencies need to decide according to strictly professional considerations, including scientific principles and professional eth-
ics, on the methods and procedures for the collection, processing, storage and presentation of statistical data.

**Principle 3. Accountability & transparency**
To facilitate a correct interpretation of the data, the statistical agencies are to present information according to scientific standards on the sources, methods and procedures of the statistics.

**Principle 4. Prevention of misuse**
The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics.

**Principle 5. Sources of Official Statistics**
Data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source with regard to quality, timeliness, costs and the burden on respondents.

**Principle 6. Confidentiality**
Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes.

**Principle 7. Legislation**
The laws, regulations and measures under which the statistical systems operate are to be made public.

**Principle 8. National coordination**
Coordination among statistical agencies within countries is essential to achieve consistency and efficiency in the statistical system.

**Principle 9. The use of international standards**
The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all official levels.
Principle 10. International cooperation

Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in all countries.

* General Assembly resolution 68/261 approved January 29, 2014. The subheadings of the Principles are not part of the original text.


To consult the original Preamble used in the initial approval of the Fundamental Principles in 1994, see Official Records of the Economic and Social Council, 1994, Supplement No. 9 (E/1994/29), chap. V. More information can be found regarding the Fundamental Principles and their history on the website of the Statistical Commission.

Principle 1 includes several concepts, enshrining official statistics as indispensable in the information system of a democratic society and directs official organisations to produce data in an impartial manner and with practical utility for citizens to exercise their right to public information. This impartiality is reinforced in Principle 2, which refers to the fact that this production must be adjusted to strictly professional considerations, including scientific and ethical principles throughout the process of generating and presenting data.

Both principles imply, in addition to the obligation of producers to observe them, the parallel commitment of other political actors to abide by them. The principle of impartiality implies that the producer of information must respect this impartiality and must not try to influence it in any other way.

Principles 3, 4 and 5 point out the proper use of sources and methods in the operation of obtaining and using information. Number 6 protects the confidentiality of the use of individual data and number 7 covers legal certainty, in the sense that laws, regulations and measures governing the operation of statistical systems must be made known.
Principle 8 speaks of the coherence of national statistical systems, which can be construed towards the need for a coordinating body that, in accordance with international practice, would be the responsibility of the national statistical office. Principles 9 and 10 enshrine the use of international concepts, definitions, and methods as well as the importance of inter-nation cooperation.

The new Preamble more clearly reinforces Principle 2 that official statistical organisations should produce information according to strictly professional considerations by introducing the concept of professional independence as such. It also adds that the Fundamental Principles must be guaranteed by legal and institutional frameworks and respected at all political levels. The wording reflects the consensus reached in the working groups that were held within the framework of the Statistical Commission for the drafting of the Preamble, in several of which various INEGI officials participated.

Although it fell short of the ideal that national legal systems should consecrate legal autonomy of the NSOs with respect to public powers, it was clear that the conditions did not exist at that time - nor at present - at the global level to achieve an international agreement in this sense, so the wording finally enshrined in the Preamble was chosen and achieved the unanimity of the countries in the three instances in which it was approved.

The Fundamental Principles represent the consensus of statisticians and countries on how all stages of the production of statistical information should be carried out, disseminated, and the confidentiality of respondents protected.

Although the Principles were developed and approved in the field of statistics, their application can be extended to the world of geographical information production. Moreover, with the increasing confluence of the combined use of both, their observance is a practical consequence. INEGI, as an institution that covers both areas of knowledge, applies the Principles in a general way to all its statistical and geographical programmes based on its legal status of constitutional autonomy.
The Law on the National System of Statistical and Geographic Information (LSNIEG) establishes in its articles that the characteristics of the information produced by the SNIEG must be quality, relevance, truthfulness and timeliness, and that the guiding principles are accessibility, transparency, objectivity and independence (Article 3). In addition, in Articles 37 and 38 it adopts the principle of confidentiality of data, protecting respondents, guaranteeing their use only for statistical purposes, and in Article 39 it includes the principle of generating the least possible burden on them.62

In addition to the specific acknowledgements to principles that must be observed and characteristics that the information must hold, in the LSNIEG’s articles, the norms are indicated, in general, according to which the System must operate reflecting the content of the Fundamental Principles. The chapter on Transparency and Accountability of the Institute (Section VI) is noteworthy, as it establishes the obligation to publish the annual publication calendar, the cornerstone of transparency and the consequence of observing the principles of official statistics.

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2.1. What does INEGI do?

AN ILLUSTRATIVE ANECDOTE

This story took place some years ago, in the mid-1980s, but it could have taken place at any time, whether it be yesterday or today. It is not apocryphal, but its protagonists - apart from this author - and the institution where it happened will remain anonymous for the purposes of this book.

One fine day, a very high-level official from a Mexican federal public office - by the way, with graduate studies abroad - consulted me - knowing about my first move to INEGI a few years earlier - regarding what it would take to conduct a survey he was planning. The idea was to measure the popularity of his boss among the population, a member of the cabinet who harboured - as almost all respected cabinet members - the ambition of becoming a presidential candidate, which, at least until then, guaranteed, despite the already diminished power of the official party, access to the most important political position in the country.

—Let me bring you someone who knows what they are talking about.

—Don’t you know?

—I have a good idea, but I’d prefer it if an expert on the subject advised you.

So I went to a friend, a specialist in INEGI with vast experience conducting surveys, who kindly agreed to meet with the high official of our story. In the course of our interview, once the idea of
conducting a survey to find out the popularity of this character was raised, something that, of course, was made clear to him right away was that INEGI could not carry out this type of statistical survey as it did not correspond to its functions, but that he could be advised personally and informally on what he would have to consider in order to carry it out, either directly or through an external private company.

—What would it take to do a survey like this and how much would it cost? —were the basic questions of the public servant interested in his potential survey.

—Firstly, we need to have the necessary sampling frame —it was the response that brought about the first expressions of surprise upon hearing the unexpected. For that, we need to define whether a survey with results at the national or state level is required —as continued the explanation of our expert.

—What do we need that thing you’re talking about, what’s it called?”

—A sampling frame. It is what provides us with the universe of what we want to measure and from which the sample is drawn so that, through mathematical calculations, we can be assured that all the elements of the target population have a probability greater than zero of being selected in the survey.

—I don’t quite understand, but what I would really like to know is how many people we need and how much it will cost.

—Well, to define that, we do need to know how many places should be visited, to which states and communities of the Republic we will have to go; at that point we would know how many people would have to be hired as interviewers, the training we would have to give them, how many supervisors would be required, vehicles, salaries, per diems, etc.

—I think we are overcomplicating things, that is going to require a vast budget and it sounds very cumbersome to organise.

—What do you have in mind?

—I had thought that my advisors would write the questions for the survey and hire about 10 or 15 social service students to take to the streets and interview the citizens that they would find here in Mexico City, we don’t need to tour the whole country for this, with that we would have an idea of what the population thinks of this person’s candidacy.
—Well, in that case, the exercise taking place would lack statistical accuracy.
—We really don’t need to get into those scientific formalities, knowing what the ordinary citizen thinks, those who are to be found in the street any given day, will give us an idea of what we want to know.

With the usual courtesies the interview was concluded, the transcript of which - without any pretensions of verbatim - reflects the direction taken. Sometime later I learned that an attempt was made at a survey for such purposes. I never learned of its results or if it was used for anything. Neither was the well-known character elected as a presidential candidate, but I doubt there is any coincidence or correlation with the aforementioned survey.

Fortunately, less and less public officials are being heard talking about conducting surveys or censuses without any consideration for what any of these statistical instruments imply in technical - and even normative - terms so that they can be carried out properly and meet the basic requirement of all gathered information, which is to accurately reflect a reality. If this requirement is not met, the official deceives the public and misleads himself with or without the intention of doing so.

Ignorance is not necessarily a sin in itself (we are not obliged to know everything), but not remedying it opens one to criticism, especially when it affects an individual’s responsibility towards public policy, without even referring to cases of concealment or alteration of data that would lead to greater misconduct on the part of public officials.

This anecdote makes evident, in addition to the caution that should be observed by those who unknowingly embark on an endeavour as such, the complexities inherent in measuring a reality. It also serves as an entry point for a basic overview of the day-to-day tasks of a statistics and geography office, in this case INEGI.
INSTRUMENTS

Traditionally, statistical offices have classified their programmes for the collecting of information into three groups: censuses, surveys, and administrative records. Additionally, to produce geographical information, INEGI carries out field operations combined with aerial photography and satellite images, as well as laboratory work for interpretation.

Let’s stop briefly to review what each of them consists of, as well as their application in the case of INEGI.

CENSUSES

They are originally counts of people or groups of people with a pretence of universality, that is, they seek to count all individuals in a given population, such as the total inhabitants of a country, as in a national population census, or economic censuses, which look at economic units, and so on.

The information obtained through census operations is particularly important because of its breadth, covering the entire universe of study, whether it be individuals, businesses or governments with data on multiple aspects of these. They seek to paint a complete picture of the country on basic aspects of its demography, its economic development or its governments. In addition, they are indispensable for the proper design of surveys as they refer to a universality, from which the sampling frames are built allowing the selection of probability samples of the population to design the multiple surveys that INEGI carries out on a variety of topics.

The United Nations’ recommendation for defining a census consists of five criteria: individual registration, universality within a given territory, simultaneity, defined periodicity and capacity to produce statistical information for small areas.¹

This concept has been extended in some countries, among which Mexico particularly stands out, to the so-called government censuses that, with this vocation of universality, seek to measure, in its entirety, the performance of state and municipal governments, as well as the federal government in various fields.

The information they produce is fundamental. The territorial demarcation of the 300 uninominal electoral districts of the nation is made based on the inhabiting population of the national territory according to the last Population and Housing Census taken by INEGI (Article 53 of the Constitution and Article 214 of the General Law of Electoral Institutions and Processes).

Also, according to the Fiscal Coordination Law, the use of the census and other information produced by INEGI is required to calculate the distribution, to states and municipalities, of a series of funds awarded by the state. For example, the General Participation Fund (Article 2) uses information on the Gross Domestic Product (GDP) for entities (whose preparation is based, among other instruments, on economic censuses), as well as the population of these entities that INEGI has made known; the Municipal Development Fund uses the latest population information from the Institute for entities and municipalities (Article 2-A); The Fiscalisation and Collection Fund also uses GDP and the population by entity (Article 4); the Compensation Fund requires the non-mining and non-petroleum GDP per capita by entity constructed with data from INEGI, as well as population information (Article 4-A); and the Hydrocarbon Extraction Fund refers to the latest economic census (Article 4-B).

Likewise, the Contributions Fund for Educational Payroll and Operational Expenses requires information on the population between 5 and 14 years of age by entity for its distribution (Article 27); social deprivations of the population in extreme poverty, determined by the National Council for the Evaluation of Social Development Policy (CONEVAL), using population information and the National Survey of Household Income and Expenditure (ENIGH) of INEGI (Article 34); the Fund for the Strengthening of the Municipalities and Territorial Demarcations of the Federal District uses the Population and Housing Census (Article 38); and the Fund for the
Strengthening of the Federal Entities uses the state’s per capita GDP and population information (Article 46).²

Finally, the distribution of the Public Security Contribution Fund uses, among other variables and information sources, data from INEGI’s most recent Geostatistical Framework, population projections from the National Population Council (CONAPO) - which, in turn, uses information from the Population and Housing Census - as well as statistics on crime prevalence and perception of the performance of public security authorities provided by the National Survey on Victimisation and Perception of Public Safety (ENVIPE).³

The traditional national population and housing censuses have been carried out since 1895, 1900, 1921 and, from 1930 continuously, every 10 years, reinforced by the so-called population counts and the Intercensal Survey, which update the demographic and socioeconomic statistics in shorter periods and which were carried out in 1995 and 2005 as well as in 2015, respectively. Economic censuses have been conducted every five years since 1935, with the periodicity being adjusted in 1989. The country’s agriculture and livestock censuses have been carried out since 1930.

In addition to these, there are exercises such as the Census of Schools, Teachers and Students in Basic and Special Education (CEMABE) conducted in 2013, as well as, starting in 2011, a series of government censuses that began with the National Census of Municipal Governments and that, to date, include the National Census of Government, Public Security and the States’ Penitentiary System; States’ Prosecution of Justice; State Legislative Branches; State and Federal Administration of Justice; Government, Public Security and Federal Penitentiary System; Federal Prosecution of Justice; and Federal and State Human Rights; as well as Federal and State censuses of Transparency, Access to Public Information and Data Protection.

² Diario Oficial de la Federación (DOF), Ley de Coordinación Fiscal, Mexico City, latest reform published January 30, 2018.
Article 59 of the *Law on the National System of Statistical and Geographic Information (LSNIEG)* grants INEGI exclusive power to conduct national censuses, expressly prohibiting the use of this name for enumerations other than those practiced by the Institute, and even establishing sanctions for its violation in Articles 103 and 106.4

In practical terms, census taking involves the organisation of highly complex operations, as in the case of population censuses, which require mobilising what could be called armies of people throughout the country to go to all households located in the national territory in a given number of days.

In 1990 a total of 656,533 people were mobilised to conduct the Population and Housing Census,5 slightly less than the army Napoleon recruited for the war against Russia, known as the 1812 Campaign, conformed of 675,477 men, the largest contingent ever assembled in Europe.6 More recently, it has been possible to reduce the number of interviewers, as the time frame for home visits has been extended from one week to one month, but the number is still considerable. In 2020, nearly 205,000 operational figures were hired (of which 151,000 were interviewers), who visited more than 43 million homes.

The enumeration of houses that is carried out prior to the undertaking of the census questionnaire, permits the elaboration of a plan based on the estimated number of these to visit, which is then confirmed in the final operation.

However, this is not the only scenario in which the survey is highly complex: economic census takers need to visit several million establishments, agricultural census takers need to census all production units in a national territory of almost 2 million km² and

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4 Diario Oficial de la Federación (DOF), *Ley del Sistema Nacional de Información Estadística y Geográfica*, op. cit.
5 INEGI, *¡Todos contamos! Así levantamos el Censo* (Mexico: INEGI, 1990), p. 32.
municipal government census takers need to visit all 2,465 municipalities nationwide to interview local authorities about the universe of services they provide and the infrastructure they have.

In addition, the censuses have an indispensable support structure in the Geostatistical Framework, a system that divides the national territory into different levels of disaggregation or geostatistical areas (state, municipal and basic) in order to geographically refer the statistical information taking the form of maps, sketches, plans and catalogs that support the activities of planning, execution, processing and dissemination of censuses and surveys.

The updating of the Geostatistical Framework is a task that is done on a permanent basis and that in a country like Mexico that still presents relatively high rates of urban growth, at least in some regions, is indispensable for the conducting of a census, as it is what allows understanding of where to go, where there is a new district somewhere in the vast national territory or new companies. It could be said that it is not even possible to plan a population, economic or agricultural census without this information.

These operations demand a great deal of planning and implementation efforts. They include, among many other elements, the design of the questionnaire, which determines a series of practical consequences. On the one hand, the questions must fulfil the objective of obtaining the information considered suitable, such as collecting the number of people living in a household, their sex, age, marital status, etc. On the other hand, the number of questions has a real effect on the duration of the interviews, the number of interviewers, equipment, and the total costs of the operation.

Balancing information needs with infrastructure requirements for a census is one of the crucial tasks responsible for the success of an operation of this magnitude. In addition to having the necessary material resources for this endeavour, the quality of the human resources participating in it will be vital both in terms of knowledge and experience in field operations. The simultaneous coordination of these activities throughout the nation will determine the success or failure of the census.
SURVEYS

As we have seen, the great development in mathematics, especially since the 19th century, has led to the creation of probabilistic surveys. These draw samples from a sampling frame (which is a list of the elements that make up the universe to be studied) by using different sampling techniques (simple random, stratified, clustered, etc.), to estimate results applicable to the general population without having to resort to measuring it in its entirety. These techniques should ensure that all elements of a population have a probability greater than zero of being selected into the sample and that this probability is known exactly.

It is of upmost importance to have a sampling frame that, pleonasmically, is complete, that is, it covers the scope of the reference. Population and housing censuses or business censuses (whether in the primary, secondary or tertiary sectors) are obvious examples of sample frameworks which, in the case of INEGI, are complemented by massive demographic surveys in the case of population and housing and by the permanent updating of directories in the case of business censuses.

Failure to meet these requirements means a survey cannot be considered probabilistic and its reliability in reflecting a reality of the general population would be compromised in the absence of scientific support for its results.

INEGI has a long standing tradition of conducting surveys that dates back to before its creation as an institute. Currently, it carries out more than 50 surveys in households, establishments, agricultural units, etc. Those carried out in homes are probabilistic, while in the case of businesses, due to the high concentration of production in a relatively small group of large companies in the national economy, combined methods are used in which these are chosen directly, and in the case of medium and small companies, this is done in a probabilistic manner. The Institute publishes the methodology used in each of its surveys, including margins of error, coefficients of variation and confidence intervals.
To give an idea of their variety, consider the national surveys of Occupation and Employment (ENOE); Victimisation and Public Security Perception; Consumer Confidence (ENCO); Household Income and Expenditure; Quality and Government Impact (ENCIG); Dynamics of Household Relationships (ENDIREH); Manufacturing Industry (EMIM); Services (EMS); Construction Companies (ENEC); Commercial Establishments (EMEC); Business Opinion (EMOE); Victimisation of Companies (ENVE); Productivity and Competitiveness of Micro, Small and Medium Enterprises (ENAPROCE); among many others in a long list. All of these can be found listed on the Institute’s website.

Care for the quality of each survey begins with its correct design, observing the methodology that allows it to guarantee its final results and is a constant in each of its stages. INEGI has staff all over the country, trained over the years, in conducting surveys and takes into account the special circumstances of each one of them to define the required profiles of the interviewers. For example, in the case of surveys seeking information on highly sensitive topics, such as ENDIREH, which asks about situations of domestic violence, women with a high level of personal preparation are hired to conduct the interviews.

The work of supervisors is of particular importance, as it is crucial for ensuring that interviewers comply with instructions they receive regarding the visiting of households or establishments. It is important to mention that, in the case of household surveys, probability sampling is applied both for the selection of the dwelling and for the person within the household to be interviewed. This is to avoid a bias that leads to interviewing groups of people who predominantly tend to be in the household during normal working hours. It implies that visits should often be repeated until they coincide with the presence of the chosen respondent, who should not be replaced by another member of the household. Such situations, for example, require special supervisory care.

Also, in the event that no one is found in the household, it will not be possible to replace it with an adjacent one and, of course, all households that fall into a sample will need to be contacted,
regardless of their geographical location. This may mean travelling to relatively isolated and distant populations as well as to major population centres to conduct interviews in one or a few households. INEGI, having offices in every state in the country, has a comparative advantage over private interviewers in mobilising trained personnel throughout the country, but the costs of properly conducting these operations are still inevitably high.

The strength of INEGI’s survey system is reinforced and complemented by other instruments of the same institutional information system, such as the sampling framework resulting from the census and the Geostatistical Framework, among others.

ADMINISTRATIVE RECORDS

These are data collected by public institutions from all spheres of government on certain facts, events and actions of public interest in very different sectors of human activity and which are capable of generating official statistics.

This information is not collected directly by a statistical office, as would be the case with a census or survey organised and carried out in the field by the same statistical office; typical examples are vital statistics, which are related to birth, marriage and mortality. We can find administrative records on a wide range of subjects: accidents, balance of trade in goods, exports, public finances, traces, urban transport, motor vehicle registration, museums, labour relations, maquiladoras (in bond manufacturing), crime, court records, etc.

The work of INEGI, in relation to administrative registers, relates to its role as the regulatory and coordinating body of the National System of Statistical and Geographical Information (SNIIEG). It involves working together with the public offices responsible for the registers, both in terms of the methodology used to produce them and the timely delivery of this information to the Institute for review and eventual publication.
It is detailed work that is done continuously throughout the year in collaboration with a wide range of government offices. INEGI is responsible for the methodological standards while carrying out both operational functions for the reception, integration and review of data and, in general, the execution of all stages aimed at final publication.

Sometimes, information from administrative registers must be complemented by other statistical instruments. An example is the case of crime statistics, which have a low reporting rate to the responsible authorities. This phenomenon occurs for different reasons in all countries worldwide, as, even in the most advanced countries, the so-called dark figure of crime (crimes not reported to the authorities or which, having been reported, do not lead to an investigative procedure) exceeds 50% of the total crimes committed, which can only be known through victimisation surveys in which, moreover, the causes of non-reporting are asked (in Mexico, the dark figure exceeds 90% of crimes).

Likewise, INEGI’s government censuses were designed as instruments to capture and improve the standardisation and time for the collection of administrative records, initially in the country’s states and municipalities, but now also covering different areas of the federal government.

As we have said, these three types of programmes are those traditionally considered in a statistics office and produce what is called basic statistics.

**DERIVED STATISTICS**

This refers to data sets obtained through the use of statistics from one or more of the sources that produce basic statistics, supported by mathematical calculations based on conceptualisations or methodologies outside the data sources used.7

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7 INEGI, “Glosario”, Registro Nacional de Estadística, SNIEG, p. 3.
The two main programmes of this type carried out by INEGI are the Mexican System of National Accounts (SCNM) and the preparation of national price indices, initially developed by the Bank of Mexico (Banxico) and transferred to the Institute in 1981 and 2011, respectively.

The SCNM is a system for organising statistical information regarding macroeconomic aspects (production, consumption, savings, investment, financial transactions and external economic relations) on the basis of bookkeeping forms. It is of vital importance for any national statistical information system as it summarises the economic activity of a society during a specific point in time. It requires complex production, integration and processing of data obtained from censuses, surveys and administrative records.

Of the various calculations that form part of national accounts, perhaps the best known and most widely used by the public is GDP, which is an economic indicator published each quarter that reflects the monetary value of the final products and services generated by a country in a given period. In order to obtain more timely information on the country’s economic activity, INEGI publishes the Global Indicator of Economic Activity (IGAE) on a monthly basis. This is a preliminary and partial indicator, which has a strong correlation with quarterly GDP, due to its use of the same conceptual scheme, methodological criteria, classification of economic activities and sources of information that are used in the annual and quarterly calculations of GDP. It is not considered a monthly GDP, as its samples are more limited than those of the quarterly GDP and it excludes various activities. However, even with these limitations, the IGAE contributes to a monthly understanding of the trend or direction of economic activity in the short term.

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9 Ibid.
National price indices are of great relevance to the economy, as they provide information on the evolution of the prices of goods and services in the country and, on the basis of these, the level of inflation is known. To this end, INEGI publishes the Consumer Price Index (CPI) every fortnight and the Producer Price Index (PPI) every month. Due to their importance and complexity, a very detailed transition programme was required with the Banxico to transfer these indices to INEGI, which was carried out during 2010-2011, and which will be described in section 9.4.

Among the multiplicity of derived statistics produced by INEGI, a series of macroeconomic indicators stand out. They form part of the System of Cyclical Indicators, which is made up of two composite indicators called Coincident and Leading.

The Coincident reflects the general state of the economy and is integrated, in turn, by the IGAE, the Industrial Activity Indicator, the Retail Goods and Services Supply Income Index, the Number of Permanently Insured Workers in the Mexican Social Security Institute (IMSS), the Urban Unemployment Rate and the Total Imports figure.

The Leading seeks to identify, in advance, the turning points (peaks and valleys) of the Coincident. It is composed of the Trend of Manufacturing Employment; the Indicator of Business Confidence: Adequate Time to Invest; the Mexican Stock Exchange Price and Quotations Index in real terms; the US-Mexico Real Bilateral Exchange Rate; the Interbank Interest Rate Equilibrium; and Standard and Poor’s 500 Index (US Stock Exchange Index).

These indicators are published monthly and can be consulted in the series of the cyclical components and in INEGI’s Economic Indicators Board. The Institute also makes the so-called Clock of Economic Cycles available to the public which uses an analysis of the Coincident and Leading indicators of the IGAE and the indicators of industrial activity, business and consumer confidence.
The production of geographic information relies on advanced technology. It involves the use of aerial photographs and satellite images that support the field work of specialised brigades that, in turn, use sophisticated measuring equipment, which have global positioning systems (GPS) making it possible to determine the position of any object anywhere on Earth to an accuracy of centimetres through a network of 24 satellites in orbit around the planet (they normally use a minimum of three or four to make a given measurement).

The brigades take geological, soil and vegetation samples, as appropriate, and review and complement in situ the physical information collected by other sources. All this work is then processed in laboratories and offices by specialised staff and equipment to produce the data, which is stored digitally and expressed in maps.

These reflect physical aspects of a place, such as its orography, vegetation, hydrology, geology, and land use; they can also add objects related to human activity, which range from referring to population centres and their extension in the territory, as well as roads and paths, to almost any type of social and economic statistics.

INEGI makes the possibility of generating maps available to the public, directly in relation to their needs and without cost, except for the inherent cost of printing at the users’ own facilities.

Examples to highlight, among the products to which every interested user has access on the institution’s website, are the Digital Map of Mexico platform, which is a set of computer tools that allow the construction, consultation, interpretation and analysis of geographic and georeferenced statistical information (it is offered in online and desktop versions with their respective user manuals) and the National Statistical Directory of Economic Units (DENUE), which provides the identification data, location, economic activity and size of active businesses throughout the country, as well as its visualisation on maps.
2.2. The characteristics that make INEGI

Since its foundation in 1983, INEGI has acquired and developed a series of characteristics which, when embodied in its regulations and applied in its daily tasks, have become distinctive of the Institute. They are what give it its uniqueness. A compilation of the most important follows:

- It is a national agency in charge of producing statistical and geographic information. It is one of only two in the world, together with the Brazilian Institute of Geography and Statistics (IBGE), which brings together both competences in the same body. The complementarity that we have seen in both disciplines would lead us to think that this type of institutional arrangement would be more common, but the reality of historical developments in separated institutions in each of these areas and the political circumstances that rule the life of government agencies, their spheres of power and competence, have prevented more countries from adopting this model.

- INEGI is an autonomous public body, independent of public authorities, in accordance with its constitutional legal status (Article 26) and the *LSNIEG*. It is one of the few institutes in the world with this characteristic, among which are the United Kingdom, Norway and Costa Rica and, together with the latter, the only ones that have it enshrined in their country’s Constitution. The specific aspects inherent to autonomy will be dealt with in more detail in section 8.3, where they will be examined in terms of their historical context.

- Legally, it is a producer of information, as well as a regulator and coordinator of other government producers of statistical and geographical information, within the scope of the SNIEG (Article 55, *LSNIEG*).

- INEGI holds the exclusive function of declaring that certain information is of national interest, in accordance with the requirements indicated by the *LSNIEG* (Article 78), which must be observed by both INEGI and...
by all the producers of government information interested in obtaining this declaration. This recognition also gives the information official status and signifies obligatory use for all levels of government.

- It is an institution that centralises the main functions of a National Statistical System in a single administrative unit as it covers practically the entire spectrum of socio-demographic and economic statistics, including national accounts, national price indices, security and justice, as well as censuses of all kinds, surveys and administrative records. In other countries, these functions are sometimes distributed across several agencies, often with the Central Bank taking on some of them, and in other cases they are divided among multiple statistical offices that are separate from each other. In the United States of America, for example, there is a Census Bureau and others for economic, labour, judicial and other statistics, each working separately, but coordinated by an office - the Chief Statistician - located in the Office of Management and Budget.

- At the same time, it is decentralised in its operational functions. It is one of the few federal government offices that moved most of its central activities out of Mexico City, in this case to the city of Aguascalientes. In addition, it has regional and state offices nationwide, through which it carries out its functions of directly obtaining information in households and establishments. They also work in coordination with local government offices in the production of administrative records and in the detection of their needs.

- It is an institution with a very high level of employment stability when compared to most Mexican public administration bodies at any level. Partly due to the technical specialisation needs of its collaborators, which require a high level of prior preparation, internal training and a professional career to acquire the knowledge and practice in the various areas of specialisation of the multiple functions carried out by INEGI. The decentralisation process, which involved the relocation of several thousand civil servants - often with knowledge that was not
common in the states where they were employed - was a factor that contributed at the time to promoting the creation of a legal statute for the professionalisation of staff that would allow them to develop and remain in the institution.

In this sense, INEGI has been a pioneering institution since 1994 with the creation of the Integral Professionalisation System. The current Professional Career Service of the Institute dates from 2009 and establishes the procedures for an adequate selection of the personnel that enters the institution, as well as their ongoing development. It includes entrance exams designed by an external institution - the Metropolitan Autonomous University (UAM) - based on knowledge profiles drawn up according to the needs of the different areas. These exams are applied by the Deputy General Directorate of Personnel without interference or knowledge of their content by the INEGI managers of the areas to which the places in competition are assigned.

- The administrative function of the Institute falls to its President (Article 80, LSNIEG) who is therefore responsible for the information production programmes, their execution and the publication of the results. While this function is carried out without prejudice to the remit of the Governing Board (Article 77, LSNIEG) which in many respects regulate the production of information, in practice it means that the Board is not directly involved in the specific process of producing the data for a given programme. In other words, the production process follows a predetermined course in a methodological way and, once the results are processed, they are published on a pre-established and announced date without a review of any kind by the Board. There is no process by which the Board can comment or agree on what data to publish, the results are simply published under the technical responsibility of those working on the programme. There is no such thing as a central bank, where public policy decisions are made on the basis of economic considerations and by a vote of the Governing Board.
Each information production programme involves a relatively large number of people with different personal backgrounds and interests, age, gender, economic status and political or other affiliations who converge on a project to be implemented under certain rules. These thousands of people throughout the country not only become responsible for complying with the rules that lead to quality information, which in the end reflects a reality that, in the strict sense of the word, is not false. All of them also become on-site auditors to ensure that these objectives are met and are the best guarantee of the institution’s solvency.

At the end of each year, it publishes its calendar for the dissemination of information for the following year with the exact day on which the results will appear, which are uploaded to the Institute’s website at 6 a.m., regardless of whether there are also press conferences required to explain programmes due to their importance and interest to a wide audience. In this way, users are assured of the dates on which the information relating to the different programmes will be made known, particularly those that may have significant repercussions for all sectors. This also protects against any possible pressure not to publish any data; something that, although a remote possibility, is preferred to be protected against.

All data provided by respondents are strictly confidential and under no circumstances may they be used for any purpose other than statistical purposes (Article 37, LSNIEG). INEGI has established regulations for the correct publication of data, taking care to avoid it being published in a nominative form or that for other reasons the informant can be identified, above all when it is preponderant in some aspect in small populations. No complaint has ever been made by users or informants that this rule has been violated. \(^{12}\)

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\(^{12}\) Jorge Ventura Nevares, General Coordinator of Legal Affairs of INEGI, was consulted via telephone by the author. May, 2019.
• INEGI, throughout its history, has published a large number of results that may not have been or were not to the liking of government authorities of the time. Examples we could cite range from the catastrophic results of the GDP growth in 1995, in which a reduction of -1.9% in the first quarter was followed by falls of -8.6, -7.6 and -6.9% in the subsequent periods (with respect to the previous year’s quarters), which resulted in a decrease of -6.3% for that year;\(^\text{13}\) to the results of the first victimisation survey conducted exclusively by INEGI, ENVIPE 2011, which estimated the prevalence of crime among the population at twice as much as previously calculated by even the most critical private survey. Only two examples with governments of different affiliations, with statistics that were defended at the time and corroborated, later, with other data.

• Over the years, INEGI has developed a broad international programme. Many exchanges and cooperation programmes have been carried out both in the multilateral and bilateral fields. INEGI has chaired the United Nations Statistical Commission (UNSC) several times and various international working groups and associations. It has provided technical advice to many countries and organised courses for young statisticians and geographers from Latin America and other regions of the world. Its presence at the global level has been significant in recent decades having participated in, often leading, some of the most important projects that have been developed at the global level such as the indicators programme for the Sustainable Development Goals 2030 (SDGs) and the Committee of Experts on Global Geospatial Information Management. Collaboration with the Organisation for Economic Cooperation and Development (OECD) and the United Nations Office on Drugs and Crime (UNODC) has been close. In Aguascalientes and Mexico City, INEGI has hosted numerous international events and congresses.

\(^\text{13}\) INEGI, “Producto Interno Bruto Trimestral”, PIB y Cuentas Nacionales, INEGI (Seasonally adjusted range. Reference year 2013).
Why is this important? Firstly, because it allows the Institute to be at the forefront of the latest advances in knowledge in all areas of information, which has not only involved learning about it but even participating in its creation. It is also a vehicle for training at the highest level for INEGI staff. Finally, it has led the institution to contribute innovations at an international level as a result of its own experience in very diverse programmes in a process that feeds back into the efforts of all the countries involved.

- INEGI adheres to the Fundamental Principles of Official Statistics approved unanimously by the United Nations General Assembly and, in fact, has been one of its most determined promoters since they entered into discussion at the beginning of the 1990s within the UNSC. In particular, it has been an important promoter and advocate of the principle of professional independence in this and many other forums.

In addition to the fact that the lSNIEG enshrines these principles as the goals of the System, INEGI has set them out in the Code of Ethics for the members of the SNIEG, applying them to the standards of conduct that govern the behaviour of public servants involved in any way in statistical and geographical activities. They are, in turn, complemented by the Principles and Good Practices for the Statistical and Geographical Activities of the SNIEG. These values are conveyed to all staff from the induction courses they take upon being hired and are reinforced by various reminder campaigns that are carried out throughout the year to maintain adequate quality in the work, promote transparency, prevent corruption and ensure integrity and the proper use of data. Values courses are also given to workers’ children, which are seen in holiday periods as part of recreational plans.

- The Institute submits its work for review to international organisations such as the International Monetary Fund (IMF), Open Data Watch and the OECD where, in fact, INEGI was the first institution to offer to be the subject of a peer review of its activities. The results in all cases are highly positive, as will be seen below.
The quality and quantity of the information, in addition to its official nature, have made it an obligatory reference for analysts specialising in a wide range of subjects, in both public and private sectors, in academia and in the media. The Survey for the Measurement of Confidence in INEGI and its Information (EMECOI), carried out in 2014 by the Institute itself in accordance with international practices proposed by the OECD and other organisations, was carried out on 3,000 homes and 3,752 economic units. Among its results, it stands out that 98% of companies and 78% of households identify the institution, and even 76 and 71%, respectively, remember having seen or heard some message about the information produced and the work carried out by the Institute. Of the total number of economic units, 16% reported having used INEGI data at some time, while in the case of households, the figure reached 12%. The degree of agreement on the importance of the information was 99% in enterprises and 97% in households that have made use of the information, which 79 and 75% respectively considered to be reliable.14

Likewise, INEGI’s Social Perceptions study - carried out in 2017 by the Institute of Legal Research of the National Autonomous University of Mexico (UNAM) with the aim of detecting, among other aspects, the levels of knowledge, trust and use of INEGI and its information - generated a qualitative and quantitative diagnosis of the perceptions of the general population, those responsible for economic units and expert users. Qualitative methods were used to capture the perceptions of specialised users, academics and members of the social, private and public sectors through 27 focus groups consisting of 195 participants. The quantitative diagnosis was based on surveys with a sample of 7,900 households and 10,040 economic units.

In this study, INEGI was the best qualified public agency in terms of confidence with a medium-high score of 7.4 on a scale of 0 to 10. This rating was achieved in a social environment that the study itself describes as generally distrustful of government and in which, despite autonomy, some sectors of the population still tend to associate INEGI with government.

Among the conclusions of the study is that it is an institution known mostly for the Population Census and that it enjoys, in general, great confidence on the part of society. However, the importance of improving the dissemination of programmes other than the census and dissociating itself from governments as much as possible was stressed.

- Few institutions are as bound by the concept of transparency as INEGI. This concept, which applies to all national public bodies, refers to the access, that should be granted to all members of the public, to their administrative actions in general.

INEGI, in addition to observing the rules and principles established for the production and presentation of statistical and geographical information governed by the LSNIEG, regarding its actions as an administrative unit, adheres to the transparency provisions that have been generated in the country in this area and of which the National Institute of Transparency, Access to Information and Protection of Personal Data (INAI) is the autonomous constitutional body that guarantees compliance in accordance with the Federal Law on Transparency and Access to Public Information. Although we are talking about information in both cases, the laws distinguish the statistical and geographical scope from that of the administrative, establishing not only specialities but also different characteristics in the area of confidentiality of the handling of information.

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In addition, INEGI collects information on the performance of public institutions with respect to their functions and their composition, as well as to material and human infrastructure, mainly through government censuses. Thus, for example, there is data on the personnel hired in each federal, state and municipal government office, where they are assigned, and - something important that was not available prior to these censuses, at least in one source - the sum of all this personnel, which gives us a vision of the national public sector.

It also measures aspects that, in addition to being quantitative, can be used for qualitative measurements, such as the number of cases or trials handled in the prosecution and/or administration of justice in a year, in relation to when they were generated and information on their characteristics.

Transparency, however, is not limited to providing information on the performance of a public office, but also to observing a series of provisions that allow anyone not only to know and understand, but also to interact with public institutions. One of the most important of these is the contracting of services, purchases and works by the public sector, which is particularly important for combating corruption.

INEGI, as we will see, has a long tradition of seeking to make most of its acquisitions through public tenders.

In the Mexican Institute for Competitiveness (IMCO) study, Corruption Risk Index: The Mexican Public Contracting System, published in March 2018, which analyses 700,000 federal public contracting procedures carried out from January 2012 to July 2017 by 1,537 purchasing units, the generalised picture found in the Federal Public Administration was of public tenders constituting a very low proportion of contracting procedures.

In this study, INEGI shone through, as of a total of 4,333 million pesos in contracts and acquisitions analysed in that period, more than 97% competed through public tenders. The 11 purchasing units of the Institute analysed in the research were among the 100 with the best practices, that is, with less risk of corruption, given
their implementation of competition and transparency in public contracting, and six of them were among the top 20.\textsuperscript{16} This same policy is maintained to date.

- Since most of INEGI’s programmes are implemented throughout the national territory, under criteria that require a high level of methodology homologation among the work teams distributed in the 32 entities, the planning and staff training process also implies an intense communication and integration among them, sharing techniques, but also institutional values. This is reinforced by activities outside the work itself, such as the organisation of regional and national sports meetings, cultural activities, national literary contests, etc., which have resulted in a clearly identified INEGI community.

In the case of Aguascalientes, the experience of going through a difficult relocation process together, living in the same district where most of the houses were built and a large number of community activities were carried out (ranging from the construction of recreational parks in their neighbourhood, the creation of a toy library for the workers’ children, drawing and literature competitions and numerous sports activities, among many others), produced factors conducive to the workers’ community identification with a common project.

Testimony to this collective feeling are the stories of life in INEGI narrated in publications such as: \textit{Mi vida en el INEGI} (My life in INEGI) and \textit{Historias de quienes nos contaron} (Census Stories), which gather numerous experiences of workers in the Institute from all over the country.\textsuperscript{17}

The sum of all these characteristics is greater than the simple addition of each one individually and it gives us what INEGI is. Certainly, an institution that, although it shares common

\textsuperscript{16} Estimated percentage of public contracting based on the use of the IMCO database, see IMCO, “Índice de Riesgos de Corrupción: El Sistema Mexicano de Contrataciones Públicas”, Investigation into anticorruption. Last update March 5, 2018.

\textsuperscript{17} INEGI, \textit{Mi vida en el INEGI} (Mexico: INEGI, 2013). // INEGI, \textit{Historias de quienes nos contaron} (Mexico: INEGI, 2011).
characteristics with other organisations, is unique in both Mexico and abroad in several of them and, without a doubt, in the sum total. It also reflects what we could call its ethos which, according to Greek etymology, is its custom, its conduct, its way of being, its ethics. In short, the prevailing philosophy in its work.\textsuperscript{18}

How did this come about? How did our peculiar institution evolve over time by constituting itself through its defining elements? Such will be the subject of the next chapters, but first it is necessary to pause for reflection with a certain counterfactual sense to reflect on its existence.

\textbf{2.3. Why INEGI?}

This question is asked here in the sense of why it was the case that an institution with the characteristics described was created in Mexico. This was certainly not inevitable; indeed, if one examines it in the light of the experience of the national statistics offices (NSOs) of Latin America and the Caribbean and of the very offices that preceded the creation of INEGI in 1983, at that time and over the last 35 years, the odds were not in favour of the creation of such an institution.

When one works directly with some of these agencies, either on multilateral international projects or at meetings in their headquarters, one can see the scarcity of resources. This reflects the low importance of these agencies at the local level for public policy decision makers and, externally, their low capacity in general to promote, let alone lead, specific cooperation programmes in the region, where leadership is limited to a few countries which, even among these, can vary greatly from one administrative period to another. In addition, there is a high mobility in the management structures of NSOs in the region, with appointments often based on political and friendship criteria in relation to the governments in power.

It was not unusual what we witnessed in the first international conference organised by INEGI in Aguascalientes in 1990, with the participation of almost all the NSOs in the continent. The recently appointed president of a Central American NSO - who, as in other cases, will remain anonymous for the purposes of this work - attending his first meeting to review the issues considered of utmost importance for the countries of the region, disappeared for a day from the sessions (incidentally, the conference lasted two and a half days). In his enthusiastic reappearance, he told anyone that cared to listen that he had discovered the textile vocation of Aguascalientes and its surrounding areas, and since his personal business was clothing manufacturing, he had taken advantage of the time by visiting some factories along the way. Then, in the middle of the plenary meeting, he showed, to the surprise of his neighbours, the thick samples of buttons he had bought. He had been kind enough to tell *urbi et orbi* about his personal friendship with the President of his country since his arrival.

An even more serious aspect has been the interventions of governments in NSOs in order to manipulate the figures they present. Several of these cases will be examined in *Chapter 11*.

In the case of Mexico, the areas of statistics and geography that preceded INEGI were state-of-the-art offices from its foundation and, for important periods of its existence, were in many ways at the forefront of international developments. It is no wonder that Mexico is the only country in the region that has carried out population censuses since 1895, with only a delay in 1920 which went on to 1921, and economic censuses every five years since 1935.

A sign of such international prestige can be seen in the hosting of the World Statistics Congress of the International Statistical Institute (ISI) in Mexico in 1933, at the time of the so-called giants of Mexican statistics: Juan de Dios Bojórquez, Gilberto Loyo and Emilio Alanís Patiño, the latter two students of Corrado Gini, the outstanding Italian statistician who invented the coefficient that bears his name and is a reference in the measurement of income inequality.
Likewise, the areas responsible for the geographic programmes had been marked as a modern institution in the years prior to the foundation of INEGI, especially due to the leadership of engineer Juan Puig de la Parra, who in 1968 proposed the creation of the Commission for National Territory and Population Studies, which changed its name in 1970 to Coordination of National Territory Studies. In 1977, this unit became part of the General Coordination of the National Information Service, which depended on the Ministry of Programming and Budget, as the General Directorate of National Territory Studies. Three years later, in 1980, it became the General Directorate of Geography of the National Territory and was integrated into the General Coordination of the National Services of Statistics, Geography and Information Technology (CGSNEGI).

However, it is a fact that by the beginning of the 1980s - after a population census with coverage deficiencies and a limited production of information and sub-optimal publication times, as we will see in the next chapter, in addition to the lack of modern computer equipment - Mexico did not have an institution that responded to the needs for statistical information required by the country’s development and that was on a par with the most advanced statistical institutions in the world.

How did this relatively new institution, appearing in 1983, become the Institute we know today? This is a story of circumstances and opportunities, of leadership and decisions, and above all of the work of many people through decades that have made this combination of factors result in the INEGI we count on today, a term perhaps never used so appropriately in all its meanings. The story of how it happened is what follows.
PART 2
THE FIRST 25 YEARS

Previous page: Digitising tables used for the updating of cartography during the decade of the 1990’s.
3.1. The consciousness of a necessity

What would have been the feelings of the young economist relatively recently returned to Mexico, after having finished his doctorate at a prestigious foreign university, at the turn of the meeting to which he had been invited along with a group of the country’s most prominent economists.

On the one hand, the mere fact of taking part in a session of this kind to discuss a subject of the utmost importance and, on the other, the fact that he was required to give an opinion on something that was clearly not easy to answer and which, to make matters worse, when his turn came - which happened to be the last one - it had already divided the experts present into practically two equal sides in number.

The moment comes in 1982, in the months following the presidential election, in the midst of one of the biggest economic crises in Mexico's history, with major international repercussions, internal devaluations, capital flight and inflation. The person asking the question is none other than the president-elect Miguel de la Madrid, who in a few months’ time would assume the country’s highest political responsibility. What he is asking the experts gathered there to resolve is whether or not the country is in an economic recession.

One by one, the accredited economists present expressed their opinion, accompanied by their polemic arguments, with the
result that they were divided into two: those who answered in the affirmative and those who denied that such a recession was taking place.

The problem was that, regardless of the criteria that could be used to reach a conclusion on whether or not Mexico found itself in a recession,¹ two quarters into 1982 there was no recent data on the country’s Gross Domestic Product (GDP).

This was what Pedro Aspe told the President-elect: that he could not make a statement on the matter because there was no data available to do so. Nor could he expect to have that information for the rest of the year because of the time it took in that era to produce information that could be useful for those purposes. The meeting ended there, without a conclusion on this delicate issue.

It would be a few more months before our protagonist would personally hear from the future president again. This happens two days before the presidential inauguration on December 1, when he goes to an appeal by the imminent president and finds, to his surprise, that the subject of this new meeting was the lack of timely information they had experienced on the previous occasion.

There he learns of a decision that would change the history of statistical and geographical information production in Mexico when the President announces that he has decided to create a modern institution that will provide an information service in line with the country’s needs. For this reason, he is asked to immediately visit the most advanced institutions in the world to learn about their modes of operation. He will have to report to him on the first working Monday in January of the coming year. The President also informs Pedro Aspe that he will be appointed as the head of this body, not yet with name or legal status.

¹ Taken by the author from various conversations with Pedro Aspe, particularly from the interview that took place on May 7, 2019 and his message to the INEGI community regarding the 35th anniversary of the Institute presented October 8, 2018 in the auditorium of the National Institute of Anthropology and History.
The following weeks will take the eventual first president of INEGI on a frantic tour of some of the world’s leading statistical offices: Canada and the USA, France, Great Britain, the then Federal Republic of Germany and New Zealand, among others. It was a journey of learning about the schemes under which some of the most prestigious statistical offices of the time operated, some highly centralised in statistical functions (as in France), others highly decentralised (as in the USA where the various programmes are distributed among a range of different agencies). All of them were at the international forefront in the development of their programmes and the operational structures to carry them out.

A recurring theme was the professional independence of the public information service. The Mexican legal-administrative system coincided with the French model in the figure of deconcentration, permitting technical autonomy for the performance of the specialised functions of a government agency that is part of the administrative hierarchy of a ministry. Edmond Malinvaud, a world-renowned economist who was at the time director general of France’s National Institute of Statistics and Economic Studies (INSEE) (1974-1987), put forward an idea that sounded radical for the time, that of complete autonomy that would dispense with the hierarchical relationship with the executive branch of government. This was something that no country in the world had at that time.

The times when the Mexican information institute - which had not even been baptised - could rub shoulders with the most prestigious of its peers in the international arena still seem far away, but this will be achieved in a few years’ time.

After revising the historical experience of Mexico and, in particular, of the information needs required by the nation at that time, complemented with the analysis of what was observed abroad and its applicability to the institutional reality, plus the legal options that could be contemplated under the current public
administration legal system, a proposal was submitted that would become the legal statute for the creation of INEGI.

3.2. The creation of INEGI. Context & consequences

The National Institute of Statistics, Geography and Informatics was created on January 26, 1983, when the Internal Regulations of the Ministry of Programming and Budget (SPP), published the day before in the Official Gazette of the Federation (DOF), came into force. These regulations were issued by the President of the Republic, Miguel de la Madrid Hurtado. It was established as a desconcentrated body of that ministry in accordance with its Articles 32 and 33.

The Minister of Programming and Budget was Carlos Salinas de Gortari and Pedro Aspe was appointed President of INEGI. The Institute was assigned four generic functions, three of which are in its name (statistics, geography and informatics), to which one was added for the presentation and dissemination of statistical and geographical information production, as well as for user care and advice.²


Internal Regulations of the Ministry of Programming and Budget

“ARTICLE 32. For the most effective and efficient handling of its affairs, the Ministry shall have the deconcentrated administrative bodies referred to in this chapter, which shall be hierarchically subordinate to it with specific

powers to resolve the matters indicated to them and within the territorial scope determined in each case.

In accordance with the relative provisions, the Head of the Ministry may reform, modify, revoke, nullify and revise, as appropriate, the resolutions issued by the de-concentrated body.

ARTICLE 33. The National Institute of Statistics, Geography and Informatics will be a decentralised body of the Ministry and will have the following attributions:

I. In the field of Statistics: [...];
II. In the field of Geography: [...];
III. In the field of Information: [...];
IV. In the field of Informatics: [...]."

There was still one pending legal issue: to make the corresponding reforms to the Law on Statistical and Geographical Information (LIEG) which had been published in the DOF on December 30, 1980.

The new team that joined INEGI at the beginning of 1983 promoted this reform together with the legal area of the SPP under the command of Rubén Valdéz, a process that concluded successfully - and with the support of all the political representations of the time - with its publication on December 12, 1983, in which INEGI already appeared in Articles 33 and 34 of the LIEG.3

3.3. A little background & pertinent clarifications

In addition to the immediate events leading to the creation of INEGI, it is important to analyse some background that explains the context in which it occurred.

3 Secretaría de Programación y Presupuesto (SPP), “Decreto por el que se reforma y adiciona la Ley de Información Estadística y Geográfica”, Diario Oficial de la Federación, Mexico City, December 12, 1983.
Miguel de la Madrid, as Ministry of Programming and Budget, had been in charge of the General Coordination of the National Services of Statistics, Geography and Informatics (CGSNEGI), where he had become familiar with the issues and problems surrounding the production of information.

He was part of a new generation of politicians in the country, with a technical background in economic areas, many of whom with postgraduate studies abroad, who understood and personally appreciated the importance of quality information for public policy decision-making. As we will see in the following chapters, it would not be the last time that considerations of this type would benefit INEGI, either through various supports - including budgetary ones - or through the use of its services in priority programmes for the government in turn, sometimes even in programmes somewhat outside its traditional functions.

Miguel de la Madrid at the SPP was aware and had even promoted an important programme initiated in 1978 to create the new Mexican System of National Accounts (SCNM). Through this programme, with the support of experts from the United Nations (UN) and the Economic Commission for Latin America and the Caribbean (ECLAC) - who joined an international group together with the Bank of Mexico (Banxico) and the SPP - the country’s national accounts were revised and modernised, and transferred from Banxico to the SPP’s CGSNEGI in 1981 and, eventually, to INEGI in 1983.4

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4 Created in the “Reglamento Interior de la Secretaría de Programación y Presupuesto” published in the Diario Oficial de la Federación on February 28, 1980 and which, in turn, replaces the General Coordination of the National Information System attached to the same SPP and established under “Reglamento Interior de la Secretaría de Programación y Presupuesto” published in the Diario Oficial de la Federación on March 23, 1977 (CGSNEGI, Los servicios nacionales de estadística, geografía e informática (Mexico: SPP, 1980), pp. 7 y 8).

5 The original external group was comprised of: Horacio Santamaría (Argentinian, head of the Group of Experts of the ONU-CEPAL), Jorge Daudé (Argentinian, specialist in input-output and national accounts), Edgardo Noya (Uruguayan, specialist in programming and national accounts), Jorge Morinelli (Argentinian, specialist in basic statistics), Sergio Zamora & Hernán Frigolet (Chileans, specialists in national accounts) (INEGI, Historia del Sistema de Cuentas Nacionales de México 1938-2000, p. 43). Jorge Daudé & Jorge Morinelli continued on this project as part of INEGI until 1989 and would remain in the Institute collaborating in other functions until the second decade of the 21st century.
This programme was presented to President José López Portillo at a cabinet meeting on April 22, 1981, a few months before Minister De la Madrid began his campaign for the Presidency of the Republic.

As mentioned above, among the various calculations forming part of the national accounts, GDP is the most widely used and is a key indicator for answering the question of whether a country is in recession or not, either under the definition most familiar to the public of a fall in real GDP for two consecutive quarters - which can be considered as more of an approximation than an exact definition - or the precise explanation of the National Bureau of Economic Research, NBER) of the United States of America which defines it as “… a significant decline in economic activity that extends across the economy as a whole, that lasts longer than a few months, and that is typically visible in real GDP, real income, employment, industrial production, and retail and wholesale sales…”.

The key problem in 1982 was that this information was not yet available in a timely manner to begin to elucidate the existence of a recession. For that year, the only data on GDP as such that was published was the 1980 GDP by state.

INEGI currently publishes a quarterly estimate of GDP 30 days after the end of the quarter, as well as GDP at constant and current prices 53-55 days after the end of the same quarter. The Gross Domestic Product, due to its enormous complexity, is produced on a quarterly basis. As mentioned above, Mexico, like other countries, publishes a monthly indicator, the Global Indicator of Economic Activity (IGAE), which makes it possible to monitor the monthly evolution of the real sector of the economy.

Although in 1982 the new SCNM already laid the foundations for having data in one of the most difficult statistical activities to carry out due to its complexity, vast efforts would still be required to make the most representative information of this system, such as GDP, available to the public in a timely manner.

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6 Heath, Lo que indican los indicadores, pp. 37-39.
Another problem that still affected the CGSNEGI in 1982 had to do with the Tenth General Population and Housing Census of 1980, which had experienced serious difficulties in its completion. Although some of the causes of these problems were attributable to deficiencies in the conceptual design and inadequacies in mapping and training, the main factor that had affected the operation was that the General Coordination did not have its own permanent structure throughout the states to carry out the operations directly. At that time the offices of the state delegations of the SPP were used and the surveys were largely conducted with personnel commissioned by the state governments, teachers and even, on occasion, members of the armed forces. In the case of the Tenth Population and Housing Census, during the operation there were resignations *en masse* by the teachers, as well as demands for payment to the Ministry.

As there was no single coordinating body for a complex operation throughout the country, this caused logistical problems between different bodies without a one having direct responsibility for the operation. At the time, it was necessary to publicise the results of the census and admit its limitations. However, the most important point was to prevent it from happening again. For this, it was necessary to think about and implement an administrative paradigm that was very different from the one that had been used up to that point.

### 3.4. Consequences: what happens upon the creation of INEGI?

Of course, the creation of the Institute alone did not solve all the problems that the CGSNEGI had faced, nor did it lose the knowledge and capacity of many specialised people who were committed to delivering work of a high standard. The important trait was that by institutionalising it with the characteristics that it did, the foundations were laid and the seed was sown of what could in time become a modern institution that would provide a quality and timely information production service.

Firstly, the mere institutionalisation in relation to the national public administration meant that the subjects of Statistics and
Geography no longer shared residence with other areas and would no longer be placed within a structure that served other functions. They would have their own instance of responsibility and specialisation under the umbrella of the Federal Public Administration (APF). This implied that the new entity could (should) convert into a spokesperson and promoter of its own prioritisation within the administrative and political processes that take place in every government, both by establishing its importance and usefulness for public policy makers and by obtaining always scarce resources for its programmes.

The second effect, of no lesser importance, was the decision to create it under the figure of a deconcentrated body, which is defined as hierarchically subordinated to a ministry, but with specific attributions to resolve the matters indicated to it, the so-called technical autonomy.

Although still placed in a vulnerable position within a ministerial hierarchy - with all that this can mean in the event of a conflict between the head of a deconcentrated body and a minister on whom it depends, even if only administratively -, there was already legal recognition that it was convenient for the functioning of such an institution to be technically independent, which, as we shall see, happened in fact over time and while setting it on the path to aspiring to a more complete statute of autonomy in the future.

Other defining characteristics are present since its inception. In the statistical field, it was established as an institution that centralised most of the functions traditionally carried out by a national statistical agency. It will carry out censuses and social and economic surveys; it will work on administrative records in coordination with other administrative units; it is already responsible for the SCNM, which in many countries still falls within the competence of the central banks; it seems only to lack price indices, which would still take some years to acquire.

It has two areas that are not commonly accompanied by statistics as substantive functions in the administrative field: Geography and Informatics.
The case of Geography was exceptional then, and is still exceptional now, despite the synergy between the two disciplines as social and economic phenomena occur in particular places of a territory, and also the registration and statistical analysis that natural phenomena deserve. Furthermore, in the field work of a national statistical office for the conducting of censuses and surveys, a geostatistical framework was required to provide the location of blocks, localities, municipalities and states in the country using geographical coordinates: INEGI uses the so-called geostatistical areas with three levels of disaggregation: state, municipal and basic, whether urban or rural.

In addition to providing the public with information at this level of geographical reference, this geostatistical framework is also an indispensable tool for organising visits to places and establishments in a country with a highly dynamic population of people and companies, where new streets, settlements and even towns can literally appear from one day to the next, as it becomes the guide for reaching these places. This work needs to be done in a permanent way and the areas of Statistics and Geography are required be in close contact to understand the technical problems that both could encounter.

The fact that the two functions are grouped in the same institution allows the visualisation of a census or survey as a common objective and responsibility, not as technical support among institutions. Seen from a cost perspective, it makes it possible for the geographical aspect to be part, albeit specified, of the same institutional budget with reductions in the duplication of administrative areas that might be required in two different institutions, in addition to the countless problems that arise in practice when two separate institutions have to coordinate for joint work.

Having the specialisation and experience in house also reduces the need to resort to private companies for the provision of services and in cases where external services are required, the Institute counts on its own specialised staff to establish the best terms and conditions for the services or equipment purchased.
The importance, in the immediate future, of the function of informatics assigned to INEGI was already apparent. It was commissioned to formulate the criteria and technical standards to be observed by the APF’s departments and entities in the field of informatics and, among other functions, to give an opinion on the APF’s expenditure on acquisitions, rent, expansion and modifications of equipment, installations and information systems. The latter implied intervening in practically every operation of the entire APF in these respects. This function was simplified for the large public enterprises - Petroleos Mexicanos (PEMEX) and Federal Electricity Commission (CFE) - towards the end of the 1980s, when they were required to only submit their information plan to INEGI and report on the operations carried out. In 1991, this practice was generalised to the entire public sector. This function finally disappeared from INEGI’s regulations in 2003, when it was transferred to the Ministry of Public Administration (SFP).

However, this left an important legacy for INEGI, as these responsibilities led it to specialise in this field, where it became a pioneer in the public sector. INEGI soon discovered the great usefulness of these technologies for the processing of large volumes of information in increasingly reduced time frames.

Although at present the National Institute of Statistics and Geography no longer has a regulatory function or external development of informatics, with the modification of its name when it was legally constituted in 2008 as an autonomous body of the Mexican State, it maintained in its identity the last letter of its original acronym for reasons of recognition of what we could consider the institutional brand, as well as the consonance (harmonic effect) of its sound: INEGI.

From the outset, priorities have been given among its functions to the presentation and dissemination of statistical and geographic information, emphasising the fulfilment of user needs, the latter objective for which the Directorate General for Integration and Analysis of Information was established as one of the four directorates-general of which the original INEGI was formed along with those of Statistics, Geography and Informatics Policy.
3.5. The beginnings of INEGI

Perhaps the most urgent on the agenda was the forming of a team that could carry out the INEGI project. A large group of young people not long graduated from their careers, many with postgraduate degrees from prestigious national and foreign universities, would soon find themselves colleagues of veteran experts in statistics and geography with years of service in public administration.

The first general directors were Carlos Camacho Gaos, in Statistics; Néstor Duch Cary, in Geography; José Luis Martínez, in Information Integration and Analysis; Luis Pablo Grijalva, in Informatics Policy; and Fermín Carpio, in Administrative Coordination.

Carlos Jarque and Antonio Puig, future presidents of INEGI, Javier Beristáin, Antonio Sánchez Gochicoa, Jaime Alatorre, Julián Quiroga, Miguel Cervera, Mario Rodarte, Patricia Cravioto, Guadalupe López, María Elena Figueroa, María Eugenia Gómez Luna (Maquena), Manuel Herrero, Edmundo Berumen, Francisco Guillén, Lourdes Mosqueda, Arturo Blancas, Rolando Ocampo, José Luis Bonilla, Roy Campos, Fernando Medina, Fernando Zepeda, Félix Vélez, Juan de Dios Solís, Alejandra Vela... are some of the many members of this first generation, whose names will be found again and again throughout the next 35 years in various roles within the Institute. The longevity of many of them is a reflection not only of the necessary institutional stability resulting from the technical specialisation and experience required by an organisation of this kind, but they have also been instruments and witnesses of the spreading of the principles and ethos of the institution.

We have seen the problems that INEGI’s predecessor had faced in its operation. It was necessary to create a new governance - a word certainly not in fashion at that time, but applicable nonetheless - that would allow the institution to function efficiently in the implementation of its projects, which by the nature of its functions are conducted throughout the national territory.

In order to avoid field work being subject to the support of other offices (such as SPP state delegations, state governments,
teachers’ unions and others), which gave rise to the usual problems of coordination and responsibility, in addition to preventing the standardisation of procedures in operations between the various states, in practice it was necessary to establish permanent offices in each of them with structures that would allow INEGI to function with technical criteria and without depending on the assistance of other bodies. In addition, these offices would have the function of meeting the local information needs of both state governments and the private, academic and social sectors.

However, an important unwritten but politically present factor had to be considered: the traditional interference of governors in the appointment of delegates from the different areas of the APF in their states. Although the statute of technical autonomy was in place, this reality had to be considered and ways to exclude the work of the institution from possible political interference had to be found.

The strategy designed in response to this problem consisted of dividing the country into 10 regional directorates, each one grouped into three or four geographically continuous states, with the exception of that corresponding to the Federal District (today’s Mexico City) which would exclusively serve the country’s capital. Likewise, the role of the central office would remain, in charge of the planning, normative and national organisation of the INEGI programmes.

The regional directorates were designed with a structure mirroring that of the central offices. This consisted of the areas (sub-directorates) of Statistics, Geography, Informatics Policy, Information Integration and Analysis, and Administration, as well as their state coordinators, with a regional director and a deputy regional director.

The process of consolidation in each state would continue in the same direction of creating permanent offices to attend to the different programmes, so the corresponding state coordinations were established with a view to preparing the 1986 Economic Censuses and the Census Round of the 90s. As such, INEGI’s regional representation was to several governments and emphasis was placed on its technical aspect.
A process was thus initiated to set up these offices with all the logistical issues that such a task implies, from obtaining the respective budgets, recruiting staff with the necessary capacity and preparation - who should already live in or be in a position to move to the different states of the country - to renting offices and equipping them, all this without yet tackling the question of implementing programmes. In particular, personnel who were already participating in projects at that time in the different states will be employed to start building up a permanent working plant, as opposed to the way it worked previously in which staff were recruited according to the project that would be carried out in a specific year.

Little by little, regional directorates were formed. The first was the Northeast (with Nuevo León, Coahuila and Tamaulipas) based in the city of Monterrey, which began operations in October 1983. Its first director was Julián Quiroga, a prominent statistician and academic from the Autonomous University of Nuevo León, with postgraduate studies at the Inter-American Centre for Statistical Education (CIENES) that the Organisation of American States had established in Santiago de Chile to prepare statisticians in the Latin American and Caribbean region. Julián had developed statistical projects for the government of Nuevo León from where he would move to INEGI to create the first regional directorate in the country.

This would be followed by the Northwest (Sonora, Sinaloa, Baja California and Baja California Sur) based in Hermosillo, inaugurated in February 1984, and in April of that year, the Centre-South (with the states of México, Guerrero and Morelos) located in Toluca.

A few months later, on June 4, 1984, the Southern Regional Directorate (Oaxaca, Chiapas, and Tabasco) appeared, with headquarters in Oaxaca City, and on the 25th of that same month, the South-eastern Directorate was established in Mérida (Campeche, Quintana Roo, and Yucatán). On July 5, the Western Directorate (Colima, Jalisco, Michoacán and Nayarit) is constituted in Guadalajara, and the Centre-North Directorate (Aguascalientes, Guanajuato, Querétaro and San Luis Potosí), on August 25, headquartered in San Luis Potosí.
Later, on September 19, the Eastern Regional Directorate (Puebla, Tlaxcala and Veracruz) arrived in the city of Puebla, and on November 27, 1984 the Northern Regional Directorate (with the states of Chihuahua, Durango and Zacatecas) was inaugurated with its headquarters in the city of Durango.

To culminate, the Regional Office for Mexico City was established, inaugurated on January 16, 1985, in the traditional INEGI building on Balderas Street.7

At the same time, the creation of information and consultation centres was initiated in capitals and key cities of the Mexican states, starting with Tampico (June 17, 1983) and Mérida (August 19, 1983), which would serve users with statistical products, map libraries and photocopying services. These centres would be attached to the regional directorates as they were established.8

The directorates continued to work on previous projects and also initiated new ones. Among the first was the completion of the publication of the Tenth General Population and Housing Census of 1980, which was presented personally by the President of INEGI to all the country’s governors with due explanations of its limitations, along with the states’ basic statistics manuals. These working tours also included the presentation of INEGI’s new operating structure, as well as the installation of the new offices and staff that were beginning operations under the new scheme.

The consolidation of the SCNM also continued, with the integration of the team previously sent by UN-ECLAC to the CGSNEGI into INEGI. This team will work closely with the new Directorate of National Accounting and Economic Statistics, chaired by Jaime Alatorre, and the Sub-Directorate of Accounts, headed by María Eugenia Gómez Luna, who would go on to become the head of the Directorate from 1985. The preparation of Mexico’s public sector

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8 INEGI, 125 años de la Dirección General de Estadística (Mexico: INEGI, 2010), p. 185.
accounts, which were published in 1984 and covered the various levels of public administration, social security and decentralised companies, continued.\(^9\)

A programme would soon be developed with the aim of presenting GDP on a quarterly basis, also with the support of the UN-ECLAC team, which achieved such a publication on a quarterly basis in 1987. This project fell under the responsibility of Antonio Puig.

In the measurement of the labour situation, the Continuous Survey on Occupation (ECSO), which had begun in 1974 with information from the states and three cities (Mexico City, Guadalajara and Monterrey), is still applied on a quarterly basis and a new monthly survey, the National Urban Employment Survey (ENEU), was added in 1983, with nine more cities to the original three. From 1985 onwards, only the ENEU will be applied and the ECSO will disappear.

Gradually, programmes for the production of information began to multiply. In 1983, the Monthly Survey of Commercial Enterprises (EMEC) was started, conducted only in Mexico City before being extended to Guadalajara and Monterrey over the following years. The quarterly survey on business economic activity dating from 1977 continued to be carried out, which was applied only to the largest companies in the country, and by 2004 this survey would become the Monthly Survey of Business Opinion (EMOE), continuing to be carried out to date.

In general, the aim was to broaden the scope of the surveys, meet the requirements of users and standardise their methodology in accordance with the recommendations of the UN Statistical Division.10

In the same year, 1983, the Indicator of Industrial Activity began to be published on a monthly basis. In 1984 the National Survey of the Formal Sector of the Construction Industry was born, which later became the National Survey of the Construction Industry (ENICO) and, finally, the National Survey of Construction Companies (ENEC).11

In the same year, INEGI begins to conduct the National Survey of Household Income and Expenditure (ENIGH), taking over from its predecessor, Banxico, in the 1970s. Against international recommendations of the time, in the sense of carrying it out during 12 months and publishing the results at the end of that period, it was considered, among other factors, that with a situation of high economic instability in the country it was more useful to make quarterly measurements with their corresponding publication. Thus, a pilot test was carried out in the fourth quarter of 1983 and, from 1984 onwards, it will be carried out on a quarterly basis.12

With the creation of the regional directorates, the planning of the 1986 Economic Censuses and the unification of the infrastructure that will carry out the Census Round of the 90s began.

10 INEGI, 125 años de la Dirección General de Estadística, p. 186.
11 Heath, Lo que indican los indicadores, pp. 170 & 171.
The 1986 Economic Censuses (comprising the Twelfth Industrial Census, Ninth Commercial, Ninth Services, Tenth Transport and Second Fisheries) will be the first to be carried out under the new INEGI scheme, assuming sole responsibility across the states for their field operation. A complete census of urban economic units was carried out, as well as a probabilistic sample survey in rural areas with two questionnaires of a common thematic body referring to the legal category, type of property, period of operations, personnel employed, salaries, consumption expenditure, value of production and income, among other variables. This operation largely solved the problems faced by the censuses of the 1980s under the previous scheme and provided INEGI with its first field experience in preparation for the 1990s census round.

Furthermore, in 1986 the Input-Product Matrix (MIP) was published with base year 1980, which rearranged economic activities, measured the industrial crafts for the first time and separated the commercial activities of PEMEX from extraction and petrochemicals. By 1987, the area served by the SCNM became the first with networked computer equipment, receiving 17 computers donated by the United Nations Development Programme (UNDP).

By 1987, the Monthly Survey of Industry increased its coverage from 57 to 129 activity classes and 3,218 establishments. In addition, a new scheme for calculating the SCNM using 1980 as a base year was released and the MIP for the Mexico City Metropolitan Area was generated. A UNDP-funded project entitled Strengthening the Mexican Statistical System was also launched, and the National Survey on Fertility and Health (ENFES) was carried out in collaboration with the Ministry of Health.

In 1988, the National Agricultural and Ejido Land Survey began, which in turn would support the work of the 1991 Agricultural Census. The National Survey of the Informal Economy (ENEI) was also carried out and, through an agreement with the Ministry of  

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14 Ejido according to the *Oxford English Dictionary* – ‘(in Mexico) a piece of land farmed communally under a system supported by the state’.
Labour and Social Security (STPS), the National Employment Survey (ENE) was set up as an extension of the ENEU to obtain information at the national level, including from less urbanised areas of the country.¹⁵

Similarly, in that year the SCNM is concluded with 1980 as its reference year, including the impact of oil on the country’s economy, a better measurement of industrial crafts, as well as information from trade, construction and industrial surveys (with 129 classes of activities).¹⁶ Likewise, the first survey on the crime rate in the Federal District and the State of Mexico was designed and conducted, and was applied again in 1990, 1992 and 1994. Similar surveys will be carried out later in Monterrey, Oaxaca, Veracruz, Cuernavaca, Ciudad Juárez and reapplied in the Mexico City Metropolitan Area.¹⁷

The installation of computer infrastructure for large-scale data processing also began in the Directorate of Informatic Services, attached to the Directorate General of Informatics Policy.

For its part, during these years, the Directorate General of Geography continued to produce the *Land Use and Vegetation Chart at a scale of 1:250 000* and the *Bathymetric Chart of the Caribbean and the Gulf of Mexico* (agreed with the United Nations Educational, Scientific and Cultural Organisation in 1982), as well as its programme to produce the *Topographic Chart at a scale of 1:50 000*, which began in 1971 and will reach national coverage at this scale in 1988. It is worth mentioning that this area has been using remote sensing images for the generation of natural resource mapping since 1982. In October 1987, the Thirteenth International Cartographic Conference of the International Cartographic Association (ICA) was organised in Morelia.

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4.1. Dark days

On the morning of September 19, 1985, the most destructive earthquake in the nation’s history hit Mexico City. With its epicentre near the coast of the Pacific Ocean, at the mouth of the Balsas River in the state of Michoacán - not far from the neighbouring state of Guerrero - and with an intensity of 8.1 on the Richter scale, it reached the country’s capital between 7:18 and 7:19 in the morning, causing human casualties and serious material damage to numerous buildings.

Authorities struggled to quantify the death toll, presenting different versions and various sources estimated between 10,000 and 40,000 deaths.¹ Whatever the exact figure, it was a tragedy of unimaginable proportions. Many buildings in the city were severely damaged or completely destroyed.

INEGI was one of the many victims of this tragedy. The building located at No. 55 Colima Street in the Roma district - one of the most affected on that occasion as it had been in the previous

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¹ The newspaper *Excélsior*, in its edition on September 17, 2015 —on the 30th anniversary of the earthquake—, estimated the death toll at 12,843 people. This calculation was made possible due to the digitisation of the records in the Civil Registry, which allowed for the use of death certificates as a base (Arturo Páramo, “Sismo 85: Definen cifra de muertes”, *Excélsior*, September 17, 2015).
earthquake in 1957 and would be in later disasters, such as the one in 2017 which, unbelievably, would take place on the same day, September 19 - completely collapsed. Guillermo González, director of Information Services, Angel Ramos, operator, and Juan Oliva, maintenance technician, who were on the premises at the time, all lost their lives.\(^2\) They had worked through the night to process census information from the last pending state of the Tenth General Census of Population and Housing of 1980: Chiapas (which, along with Oaxaca and the Federal District, had been one of the most problematic states for the collection and processing of information). Groups of INEGI colleagues, at the risk of their own lives, unsuccessfully tried to rescue them from the rubble.\(^3\)

In addition, the building occupied by the Directorate General of Geography (DGG) on San Antonio Abad Street, although it did not collapse, was left in very poor conditions implying great risk for the workforce, thus it had to be closed. In total, the area lost in these and other centrally-located buildings with inferior damages amounted to more than 50 thousand m\(^2\), leaving 2,475 employees without a workspace.\(^4\)

Another earthquake, 7.6 on the Richter scale, struck during the night of September 20, making rescue work difficult and fueling widespread panic among the population.

An institution that was barely two and a half years away from its foundation was thus facing one of its greatest challenges in the continuance of its work, with the loss of the lives of three of its colleagues, essentially without most of its working spaces, information in process and with the possible loss of morale that these tragic events entail. However, it should be noted that, in general, both


\(^{3}\) Testimony of Fernando Medina, personally in contact with Guillermo González in the days leading up to the earthquake, interview with the author, June 3, 2019.

the population of Mexico City and the staff of INEGI reacted with immediate solidarity by coming to the aid of the affected people in an exemplary manner while trying, as far as possible, to continue their work.

4.2. Mission: relocate to Aguascalientes

A quick reaction was needed. The new president of INEGI, Rogelio Montemayor - who had only taken up this post in August when Pedro Aspe was appointed deputy minister for Programming and Budgeting - and the INEGI management team immediately set about finding solutions to this problem.

Prior to the 1985 earthquake, the Federal Public Administration (APF) had identified one of its priorities as the government’s decentralisation of the Federal District to medium-size state cities with the aim of helping to reduce the enormous urban and economic concentration that has historically occurred in the country’s capital. In fact, a decree to this effect had been issued on June 18, 1984.5

It was clear from the outset that decentralising INEGI’s offices to another city was an option that offered enormous advantages in the medium and long term while resolving the urgent situation facing the institution. The shortage of office buildings in Mexico City, which was already acute, was going to be immediately aggravated by the loss of space due to the earthquake. In addition, from a human aspect there was an opportunity to integrate an attractive proposal for workers and their families.

On October 9, 1985 the National Reconstruction Commission was set up and the following day the Decentralisation Committee was established within it. Meanwhile, the search for a new

5 Secretaría de Programación y Presupuesto (SPP), “Decreto por el que las dependencias y entidades procederán a elaborar un Programa de Descentralización Administrativa que asegure dicho proceso”, Diario Oficial de la Federación, Mexico City, June 18, 1984.
headquarters for the central offices began at INEGI. The Regional Directorate would remain in the capital to meet the needs of the local population, as is the case with all the regional offices.

A series of criteria were established that coincided with the decentralisation policies set by the APF and some specific to the needs of INEGI. Planning that considered general aspects but also the logistics of the transfers was crucial.

The key targets were:

- Guarantee continuity in the public information system.
- Find a centrally-located city avoiding or at least not aggravating current urban congestion.
- Contribute to regional development.
- Contribute to providing an improved quality of life for the relocated personnel.
- Contribute to the decentralisation efforts of the nation.6

The first crucial decision that had to be taken was on the new headquarters, which, once resolved, would allow the other identified objectives to be addressed. In order to narrow the search, alternative large cities that were already centres of large population concentration, such as Monterrey and Guadalajara, as well as ports with a tourist vocation and places far from the centre of the country were first discarded due to the costs that would be implied in terms of operation, physical transfers of people and communication.

The exclusion of a zone surrounding the Federal District was also contemplated in order to reduce pressure in the conurbation area and at the same time avoid decentralisation efforts that only lead to officials commuting to the new headquarters, from their homes in the capital of Mexico instead of relocating, and thus avoiding the inefficiency that these transfers and the consequent increase in traffic would cause.

6 INEGI, Descentralización del INEGI. Memoria de un Proceso, p. 46.
The chosen upon area to begin the search for the new headquarters was set between 300 and 800 km north of the Federal District. The cities of Morelia, San Luis Potosí, Saltillo, Guanajuato, Aguascalientes and Zacatecas were identified as potential candidates.\textsuperscript{7}

Approaches were initiated with the respective state and municipal governments. It is one thing that these cities should, in theory, have the required characteristics and another that they should be in a position to fulfil them and there should be, above all, the political will to embark on a complex and costly project involving great difficulties, as we shall see later, although possible benefits were also on the table for the would be host city.

Aguascalientes had, for years, experienced significant growth and the administration of governor of Rodolfo Landeros (1980-1986) had developed crucial planning and economic policies for the state, which had resulted in the arrival of the Nissan and Xerox factories to the city of Aguascalientes with the consequent benefits for employment and local development. These factories, in time, would become quality reference points for their own global companies. Nissan would establish two more plants, one in partnership with Mercedes Benz, and Xerox would become Flextronics, also leading internationally. Aguascalientes was a city planned for long-term growth with the equivalent of two peripheral ring roads, to which a third would be added in the future. A key aspect was that the state government prioritised the policy of developing and attracting investments and companies.

It was in this environment that the state government opened its doors to the Institute and, moreover, offered a number of immediate benefits that were not available in any of the other options.

Its capital, located approximately 530 km from the Federal District, in the geographical centre of the country, with a tradition of receiving visitors that went back to the years of instability of the

\textsuperscript{7} Ibid., pp. 50 & 51.
Revolution and the Cristero Civil War\textsuperscript{8} and that had been reinforced in the immediate previous years, with good educational centres and a booming commerce and industry, also offered a very attractive quality of life and environmental conditions for the emigrants of a great metropolis.

The first support measures were important. The state government donated 75,196 m\textsuperscript{2} for the construction of the headquarters building on land adjacent to the Héroes Mexicanos Park, the city’s old airport which had been moved years earlier to new facilities outside the city and which offered daily flights to Mexico City and other destinations around the country, which also benefited the institutional operation; but the most important thing was that, by having its own facility, INEGI could concentrate its central offices in one place with beneficial consequences for the daily performance of its tasks. Although it is difficult to make cost comparisons due to the time elapsed and the inflation experienced during those years, it will suffice to mention that the book value of this building in 2018 was 900 million pesos.

The state government also donated 32 hectares in the Ojocaliente development and 5.4 hectares in Primo Verdad for the construction of workers’ residences.\textsuperscript{9} In addition, 200 starter-type houses that were previously earmarked for construction were made available to INEGI, as well as the credits for their acquisition; these would be integrated as part of the first stage of the Ojocaliente development. The pioneers of decentralisation arrived in the area between August and September 1986, approximately one year after the disaster.\textsuperscript{10}

\textsuperscript{8} The Cristero War or Cristero Rebellion was an uprising in central and western Mexico during 1926-1929 in which thousands of Catholics engaged in armed revolt. It was set off by the enforcement of anti-clerical provisions of the Mexican Constitution of 1917 and rigid regulations implemented by President Plutarco Elias Calles to impose restrictions to the Catholic Church (Andrés Rendon, “The Cristero and Mexican History”, HistoricalMX.)

\textsuperscript{9} Ibid., p. 55.

\textsuperscript{10} INEGI, 125 años de la Dirección General de Estadística, p. 191.
The support of the local government, in addition to these donations, was reflected through multiple actions for the urban development of the new districts where INEGI workers were installed and was crucial to the success of the decentralisation operation. Besides this, the facilities provided were used by the Institute as offices to operate in Aguascalientes while the main building was being completed, which would not occur until the second half of 1989.

On February 20, 1986, with the President of the Republic as witness, the government of Aguascalientes ceded the new State Treasury building to the Institute, even though it was barely under construction, provoking the necessary speeding up of its construction so that INEGI could have 13,000 m² occupied by areas of the DGG, which were later joined by the Legal Department and the Training area, among others.

At the same time, INEGI rented warehouses on General Barragán Street, where the aerial photography laboratory was installed in 1,600 m², and in the industrial zone of Aguascalientes (the only one in the city at the time, located next to the Héroes Mexicanos park), where the Edition and Printing Workshop and its central warehouse were installed along with the General Services area of the Administrative Coordination. Similarly, three buildings were rented on the streets of Libertad, Pedro Parga and Chichimeco for the General Directorate of Statistics.11

In January 1986, the first INEGI offices were established in a symbolic building for the city of Aguascalientes, the so-called Chalet Douglas, which was the seat of the Institute’s Presidency until it was moved to the main building upon completion at the end of 1989.

While negotiations with the state government were taking place, INEGI surveyed all its employees to find out about their availability to relocate, as well as the structure and needs of the families, their work profiles, housing requirements, etc., all of which are indispensable factors for the success of a programme of this nature. Moving around 3,000 workers meant that the obvious complications of relocating a family were multiplied by this number and involved, in fact, moving approximately 15,000 people to another city. This brought new factors to be considered (such as partner employment situations, especially if they were not to be employed by INEGI, number and age of the children in order to analyse educational needs, the quota in local schools, etc.) not only because of the magnitude of the movement, but also because of the impact on the receiving community, something that also had to be included in the planning, measuring all these aspects and, most importantly, finding their solution.

On October 21, 1985, the decision to decentralise to Aguascalientes was formally taken, and on October 25, 1985, an Execution Agreement was signed by the federal government (represented by the heads of the ministries of the Interior (SEGOB); Programming and Budget (SPP); Urban Development and Ecology (SEDUE); Labour and Social Security (STPS); and the Federal Comptroller’s Office), INEGI and the state government of Aguascalientes to formalise the relocation of the Institute’s central offices to its capital city.

The agreement set out any support that the state of Aguascalientes was to provide for this change of venue, which was

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12 INEGI, 125 años de la Dirección General de Estadística, p. 191.
13 INEGI, Descentralización del INEGI. Memoria de un Proceso, pp. 55-56.
followed by a general agreement signed on February 20, 1986 by the SPP, the Ministry of Finance and Public Credit (SHCP) and SEDUE, as well as the Institute of Security and Social Services for State Workers (ISSSTE), the Fondo Nacional de las Habitaciones Populares (National Fund of Popular Housing), the Fondo de Operación y Financiamiento Bancario a la Vivienda (Fund for the Operation and Financing of Housing), the Banco Mexicano Somex, INEGI and the state government, where commitments and steps were stipulated to promote a special housing and credit programme for workers. The SPP committed to financing 50% of the cost of the required drinking water and school works.

INEGI created a specific area for the coordination of decentralisation efforts, the so-called relocation operation, and this programme became a priority for several areas, such as the then Executive Coordination and the Administrative Coordination and, of course, for the general directorates that were going to relocate their staff to another city.

The most important projects, in terms of infrastructure construction, would be the future headquarters and housing for workers.

Once the required specifications were understood, the headquarters were designed. The architectural project, designed by the architect Alejandro Caso Lombardo, was completed in August 1986 and construction began in May 1987. The first stage was completed in mid 1988 and the second stage in the third quarter of 1989.

The main building was able to bring together all the functional areas of that time in the same workplace by having 7.5 hectares of land, of which 22,000 m² were originally allocated to offices, 25,000 m² to parking, 17,000 m² to workshops and laboratories, as well as 13,500 m² for green and ornamental areas. It also has a large Multipurpose Hall, which can be adapted to the varying needs of diverse groups of between 50 and 500 people. Later, in 1992, the Training and Computing centres were added, along with the Auditorium.

It was built in a style that resembles the pyramids of ancient Mexico and in 1991 it was equipped with air conditioning. Although
some local architects have always criticised the profusion of windows because of the strong winds that hit the city in the months of February-April, it has become one of the buildings of reference in Aguascalientes over time.

### An anecdote...

Before the air conditioning was installed in the Aguascalientes headquarters building, it was said - perhaps in the form of a joke - that the INEGI workers had had the opportunity to reproduce the living conditions found in the pyramids of antiquity. Because of the high temperatures inside the building most of the year, some observers proposed the theory that these conditions explained the causes of the abandonment of pyramids, such as those of Teotihuacan. Fortunately, with the arrival of air conditioning, these comments disappeared from the Inegian imagination.

The process of relocating offices, staff and their families prioritised supporting the improvement of their living conditions. One of its stipulations was to offer facilities for the purchase of housing, therefore, as from the general agreement reached on February 20, 1986 with construction and credit institutions, the Housing Programme Trust (FIPROVI) was constituted to manage and operate the resources assigned to the construction of the houses. The trustee was the Banco de Crédito y Servicios; as trustors, the credit institutions that contributed resources; and as beneficiaries, the workers that would acquire housing.¹⁴

Different types of housing were offered, seeking to provide options according to the needs of the employees and their financial capacity. The Family Programme consisted of the starter-type houses, as well as flats that were called FOVI I, II, III and IV, according to their size.

¹⁴ Ibid., p. 65. 
Moves were scheduled around housing completions, work schedules and holidays for workers’ children. The stages were developed as follows:

- **First**: 200 workers moved in August 1986; they took advantage of the houses initially offered by the state government, which were raffled off among the interested workers.
- **Second**: 1,345 workers move from July 15, 1987 onwards.
- **Third**: in August and September 1988, a total of 661 workers arrived.
- **Fourth**: in the second half of 1989 the last starter-type houses were handed over to 650 workers and their families.

To this total of 2,856 we must add middle and high-level management, who received loans for the purchase of their own homes. The final figure exceeded 2,900 people, including the newcomers to INEGI who joined the institution in 1989 with the change of administration in the federal government.

Both in the construction of the main building and of the housing, especially of those in the fourth stage, there were considerable delays due to coordination problems between the various federal bodies involved and the lack of fluidity of resources, occurring in an environment of economic instability that the country had been experiencing for the two previous six-year presidential terms, as well as the dismantling of projects, common in changes of federal administration. Because of these delays, many of the families moving to Aguascalientes in the last stage had to live in hotel rooms, which were not exactly luxurious or spacious, while the personnel worked in industrial facilities as the offices were not yet finished.

This is the panorama that the new INEGI administration under Carlos Jarque faces in December 1988. Work had been halted, partly because of the inefficiencies of the builders, but also because of the delay in payment to them.
The unsustainability of the situation, from both a human and administrative perspective, upon being exposed to the ministries of Programming and Budget, Ernesto Zedillo, of Finance and Public Credit, Pedro Aspe, and to the President of the Republic himself, resulted in immediate support for the flow of resources to aid the completion of these works. As a result, negotiations were held with the construction companies at the beginning of 1989, resolving the issues that had been holding up the completion of the buildings so that they would finally be ready before the end of the year. This allowed for the addressing of the technical priority now upon the Institute: the undertaking of what was called the Census Round of the 90s.

In addition to the main building and workers’ housing, a great effort was made at the federal and state levels to provide infrastructure and urban equipment (drinking water, drainage, health, food supply, transportation and roads, sports and recreation) to the districts where INEGI staff settled.

Two kindergartens, three primary schools and one secondary school, were built for the children of INEGI workers, facilities that would eventually benefit the city’s general population. INEGI, in coordination with ISSSTE and private sector companies, established a nursery service. Also, an urban transport service was created between Ojocaliente and the headquarters, in addition to the construction of sports fields, parks and other amenities in the Primo Verdad and Ojocaliente neighbourhoods.

The Institute’s workers - who had shared in the suffering and anguish of the earthquake and then again in the difficulties of a relocation process (always traumatic), and many of them who would live in physical proximity as neighbours - are going to develop a great community sense of belonging to INEGI. The institution promoted, from its various areas, programmes to encourage this spirit of coexistence and institutional belonging.

Seeking to improve the living conditions of INEGI workers, in May 1989, FIPROVI announced a programme to refinance 50% of the housing payment over three years, resulting in 1,312
contracts, and in 1991 a trust-based lending scheme negotiated with FOVISSSTE was implemented.

Similarly, the Institute established a medical office with an ambulance service in the Ojocaliente district, a place where there was the greatest concentration of workers and which was considered an INEGI neighbourhood in its early years; over time, although there is still perhaps a majority presence of employees, local and other populations have been mixing with the original settlers.

INEGI initiated in November 1989, as part of its Modernisation Programme - which we will analyse in the next chapter - the Integral Programme of Training, Education and Research (PICFI). This programme, rather broad in its scope, included a series of activities for workers, their spouses and children, some of which would be developed in the Ojocaliente area itself and others in INEGI.

A month after the initiation of the PICFI, in December 1989, the First Children’s Plastic Arts Workshop was held for the children of INEGI employees. In May 1991, the workshop was given premises in Ojocaliente to make it easier for children and young people to attend during the week. In 1992, a children’s toy library was created in the same area.

The First Technical Book Fair in Aguascalientes was held from September 4 to 6, 1991, in the Multipurpose Hall of the headquarters, which was open to the public, as well as to INEGI personnel, thus starting a tradition around this event that will become, as of 1992, practically an annual fair of the city made up of various cultural events, theatre and cinema. In its various editions it has been attended by distinguished speakers, such as Carmen Aristegui, Sergio Sarmiento, Jorge Fernández Menéndez, Javier Solórzano, Jaime Sánchez Susarrey, Renward García Medrano, Edmundo Flores, Pedro Ferriz de Con, Pablo Milanés, Gabriel Retes, Mauricio Flores and René Delgado, among others.

\[ \text{Ibid., p. 109.} \]
PICFI will soon be extended with a variety of courses to be imparted to staff from all over the country as well as to foreign students, who will come to Aguascalientes to take many of these courses in person. To this end, in April 1990, a commodatum was signed with FIPROVI to use a 32 apartment building in the Primo Verdad development as a lodging centre, which will eventually become a reference point for INEGI staff from across the country and many of the hundreds of foreign students (mainly from Latin America and the Caribbean) who will come to the Training Centre over the next 10 years.

In addition to the Training Programme, football, basketball, volleyball and athletics tournaments were initiated. The first INEGI mini-marathon was held on the occasion of Columbus Day on October 12, 1989. With institutional support, the INEGI sports delegation from Aguascalientes won first place in the SPP games of 1989 and 1990. In the cultural field, from 1990 onwards, storytelling, photography, painting and music contests are to be held.

The popular New Year’s Eve celebrations for workers and their families were instituted in December 1989, first in the gardens of the headquarters, later in the Heroes Mexicanos Park and in the mid-90s in the Monumental Bullring of Aguascalientes.

The INEGI staff themselves are going to carry out, with the support of the institution, cleaning and forestation operations of the housing areas since 1990; and in addition, the Institute is going to promote the construction of two recreational parks in the Ojocaliente district.

Most of these activities were incorporated institutionally so they could be carried out annually in the 1990s. In addition, the Mother’s Day Breakfast/Feast began to be held, initially in some of the city’s traditional festival halls, which gradually became insufficient, forcing a move to the Convention Centre, in the centre of the city, next to the Monumental Bullring, to finally find its home at the end of the 1990s in the renovated old railway workshop facilities, where it is held today.
Both at the institutional and individual level, there was a rapportchement with the society of Aguascalientes, not only at the government level but also with other social actors. In general terms, the local population received the new arrivals with great hospitality, and in addition to making personal contacts, they soon began to participate in various activities, such as teaching in various educational centres. As time went by, they adapted to a city that, as we have seen, had a long history in receiving foreign emigrants; the Catholic Church itself even distributed a homily among its parishioners welcoming the newcomers, which helped to resolve possible frictions.

4.3. A recap of a complex process

By the end of 1989, the headquarters are completed and occupied by INEGI staff, the houses and flats have been handed over to the workers and their families. The Institute has not only been able to maintain its programmes and continue to provide public information services, but is also in a position to face one of the greatest technical and operational challenges in its history: the Census Round of the 90s, which included the 1989 Economic Censuses - already underway throughout the country at that time -, the Eleventh General Population and Housing Census of 1990 - which had required at least two years of prior planning with a housing count in 1989 - and finally the Agricultural Census of 1991.

The process of relocating - which in many ways was still ongoing - had taken almost four years since the earthquake until the Institute was properly functioning in Aguascalientes. Despite the difficulties resulting from the natural complexity of an unprecedented process in Mexican public administration, implemented under harsh conditions not conducive to adequate prior planning, with limited options, in the midst of a change of government and an economic crisis with budgetary restrictions, INEGI became the only institution of its size that managed to move its headquarters to another city.
The case of INEGI illustrates the challenges and difficulties of a process of decentralisation involving the transfer of complex functions from one city to another and a substantial number of people with the consequent infrastructure requirements.

This experience deserves a brief reflection on the key factors that influenced the realisation of this process:

1. Firstly, the decision to decentralise was part of a government strategy, even prior to the earthquake, and immediate steps were taken to find a new location.
2. The strategy focused on both building physical infrastructure for the institution and on the human element, without neglecting one to the detriment of the other. INEGI needed a place to operate, but also meeting the diverse needs of its workforce - both personal and professional - was essential to the success of the project.
3. A specific area of the institution was created to address decentralisation and coordinate the support it should receive from other internal areas, as well as from federal, state and municipal external entities.
   This area was responsible for making a detailed plan of the operation and implementing it with a group dedicated full time to the direct attention of the transfers of people and equipment.
4. The response of the government of Aguascalientes was crucial to the success of the project. A series of favourable circumstances were combined with a far-sighted and generous local decision, which was channelled through a previous local development policy focused largely on attracting production companies and supported by long-term urban growth planning. Aguascalientes, in this sense, offered ideal conditions for the new headquarters, which were not presented in the other cities considered as possible candidates.
   In fact, there is no record of ever having received a competing offer for assessment, reflecting the difficulty of finding a host city with the appropriate...
infrastructure and conditions to absorb such an influx of people within a few short years.

5. The federal government gave both budgetary and political priority to the decentralisation project by combining the efforts of many different government, administrative and credit agencies to roll out a project that required resources for public and private infrastructure (workers’ homes). Even in the face of the delay caused in part by the end of one political administration, the next, at the highest level, would have an immediate reaction of support that freed up resources and prevented a serious labour problem in the making.

6. As a result of the priority given to addressing the human factor, an extensive community development programme was established for INEGI workers in Aguascalientes.

We can say that INEGI did not choose to change its headquarters, but that this decision was imposed on it by circumstances, as the option of not decentralising and staying in the country’s capital was not presented as viable in the face of the disaster caused by the 1985 earthquake. More than a third of a century later, the benefits of decentralisation are now clear to INEGI, which as an institution was able to have decent facilities that allowed most of its staff to be grouped together in the same space with offices, workshops and laboratories. The workers, in turn, were able to acquire housing with loans to which the vast majority would not have had access under the normal circumstances of the time, as well as to live in a city that offered many advantages when addressing quality of life.

In addition, this process made it possible to create a dynamic for the Institute to operate separately from the rest of the APF, which has been reflected both in the internal perception of INEGI’s collaborators and externally for the federal and state governments.
Towards the end of the 1980s, INEGI was heading for a crossroads. The young institution - created with the purpose of becoming a modern agency of information production, with aspirations of emulating the best in the world in its field - had suffered a devastating blow by losing an important part of its physical facilities. This had led to a process of relocation that was, to say the least, a distraction from its main objectives in terms of human resources, funds and time. It was now facing the biggest technical challenges in its still relatively short history: the Census Round of the 1990s, which included the 1989 Economic Censuses, the Eleventh General Population and Housing Census of 1990 and the Agricultural Census of 1991.

The challenges seemed to be compounded when combining the memory of the failure of the 1980 Population Census, mainly because the new institution was supposed to correct the causes that led to its deficiencies, both in its organisational scheme and in the quality of its operations. As such, the crossroads became a crucial test for the institution.

5.1. The modernisation of INEGI

While attending to the completion of the move to Aguascalientes and continuing preparations for the upcoming censuses, the Institute’s new administration, headed by Carlos Jarque, structured a modernisation programme around 10 aspects from the outset: Decentralisation, Infrastructure and equipment, Methodologies, Training, Agreements, New technical areas, New products, Promotion of statistical and geographical culture, New administrative framework and Professionalisation of staff.1 To these, in 1995, Total Quality was added.

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As we will see, these aspects are interlinked and the efforts that were made to foster them will intersect with each other, one reinforcing the other.

It was the first time that a modernisation programme was structured as such. In some cases, its basis or aspects continued previously initiated efforts and, in others, developed innovative actions. Through its analysis the evolution of the institution in the 1990s can be observed.

DECENTRALISATION

Including both the completion of relocating INEGI’s central offices to the city of Aguascalientes and the strengthening of the territorial structure in all entities of the country. This structure is currently made up of the 10 regional directorates and 34 state coordination offices whose mission is to promote the state’s statistical and geographic information systems.

This aspect comprised the decentralisation of functions to regional directorates for the management of human, material and informatic resources under the normative direction and supervision of central and audit offices. They were provided with computer and office equipment, furniture, vehicles and the necessary personnel for their operation.

A programme to acquire buildings through financial leasing was initiated, leading to the purchase of premises in Guadalajara, Mérida and Durango, in addition to Mexico City. In order to obtain the best conditions for this, a public tender was held in which the country’s main banks participated, from whose proposals the most convenient in terms of cost for the Institute was chosen.

The collection, capture and processing of surveys and the production of census results at the state level, as well as the local production of publications, including state statistical yearbooks and municipal statistical notebooks, were transferred to the regional directorates.
This decentralisation will be crucial for the work of the Programme for the Certification of Ejido Land Rights and Titling of Urban Plots (PROCEDE) at state level, as we will see in the next chapter. In fact, the capacity and experience of INEGI, resulting from its presence throughout all the states of the country, will be one of the reasons why its intervention in this important operation will be requested in 1992.

In this way, INEGI becomes a national institution in the sense that it has offices that directly promote its objectives across all states of the country, with the technical capacity to produce information and to permanently attend to the information needs of the population and state governments. Its local offices are in a position to carry out operations of substantial dimensions, such as censuses, as well as surveys in which relatively few households are visited in a state, but since they have a permanent team that manages the Institute’s regional surveys, it is possible for them to cover smaller operations with adequate costs distributed among different programmes.

INFRASTRUCTURE AND EQUIPMENT

Although INEGI had gradually developed its central computer centre and a printing facility with modern equipment allowing the meeting of its needs internally for questionnaires and other publications, personal computers were still scarce in 1989, as there were only about 30 computers, which were reserved for a small number of particular programmes. They were by no means sufficient, especially considering the increasingly evident progress and development of software and hardware.

A programme was initiated for the acquisition of more than 3 thousand personal computers that were purchased between 1989 and 1993. Together with the equipment for the programmes in the area of Geography and PROCEDE, the number of personal computers reached 5 thousand units by 1997.

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3 Ibid.
This implied a substantial change in the way the institution worked; an immediate need surfaced for the training of staff at all levels in the use of the new machines, which would no longer be the exclusive use of the Computer Centre’s experts, but would also include a large part of the personnel. In this sense, one of the first actions of the Training aspect that we will see later was to offer courses for the use of the various software programmes used at INEGI. This would have an effect on institutional productivity, the results of which, perhaps, could not be fully visualised at that time. Currently, at INEGI practically all permanent employees have access to computer equipment with an installed capacity of more than 16 thousand laptops.

The 10 regional computer centres were linked via satellite with mainframe equipment, high-speed printers and an extensive terminal network.

Additionally, in 1992 the modernisation programme of the National System of Geographic Infrastructure began (as we will see in the Methodologies section), requiring the acquisition of the most advanced equipment of the time to digitally generate geographic information: scanners, work stations, plotters, stereoscopic devices, aerial photography cameras and air navigation instruments were acquired, in addition to the installation of equipment to digitalise cartography and the purchase of receivers for a global positioning system (GPS).

Likewise, when INEGI was entrusted with the measurement of PROCEDE plots and lands, as we will see in the next chapter, it was necessary to make important acquisitions of additional equipment to carry out this national operation, which involved the individual measurement of areas, among other types of social property, covering approximately half of the country’s territory.¹

With all this equipment, the National Active Geodetic Network (RGNA) was put into operation with 15 fixed GPS stations that, to date, capture information 24 hours a day.

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Finally, the regional public service centres were equipped in such a way that they could directly access the databases of INEGI’s computer centres.

METHODOLOGIES

It consisted of reviewing the methodologies used in the different projects, as well as for the development of new fields, such as those of green Gross Domestic Product (green GDP) and the informal economy. The planning of the censuses required a rethinking of the then used methodologies, which positively impacted on the results of the fieldwork, as we will see below.

Due to INEGI’s progress in this area, requests for international cooperation arrived, particularly from countries in the region, from that time onwards and through multilateral schemes such as the Statistical Conference of the Americas (SCA) in which the Institute has demonstrated great participation and leadership.

The transition from analogue to digital technology in geographic production represents a substantial change. In 1992, INEGI undertook a complete overhaul to the entire way of working in the Directorate General of Geography (DGG). In order to learn about the latest technological advances in the field, meetings were convened between Mexican and foreign experts and a work team was set up with Néstor Duch, Director General of Geography, Gaspar Reza, Western Regional Director, Carmen Reyes, from the Coordination of Advisors, and Jesús Campos, from the DGG, who visited different countries to learn about the most important technological developments.

The result of these works was a call, prepared by the DGG, for an international tender to modernise its entire information production process, which was attended by specialised companies from all over the world, many of them in association with prestigious national geographical offices. The tender was awarded to an international consortium led by the Canadian Lavalin (one of the largest engineering companies in the world) which included companies such as
Laser-Scan$^5$ created by the Cavendish Laboratories of the University of Cambridge, England, and others of great international prestige. In this way, the DGG was modernised with the most advanced methodology and equipment at that time on an international level.

A curious tale

—You’ll never believe which company is failing to uphold a contract they have with us!
—No, who are you talking about?
—M. Can you believe it?
—That is a surprise, it’s one of the most serious companies we have worked with, their credentials are top notch. Have you spoken with them yet?
—Not only spoken, we’ve sent letters warning of several breaches; if it carries on like this, we’re going to end up terminating the contract. What’s more, I really didn’t want to mention it, but they are giving the impression that they don’t even care.
—Is their representative still the pretentious international employee?
—Yes.
—Please try again, schedule a meeting and clearly warn them what they stand to lose.

However, neither this new meeting nor other counter-claims seemed to get a positive reaction from the company, which was falling more and more into more obvious breaches.

It was then that an unexpected factor came to our aid which, although frequently present in the daily life of a working community that largely lived in the same district (in this case Ojocaliente, Aguascalientes), under normal circumstances would have been avoided or discarded.

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5 Laser-Scan, “INEGI: A model for Modernization”, Laser-Scan, Paul and Margaret Hardy’s Home Page.
—I’ve heard a rumour floating around in Ojocaliente that has something to do with the $M$ case.
—Ah really! So, what’s it all about?
—Do you remember $F$? The blonde guy that worked in the Institute a few years back?
—Yes, he always brought strange projects to the table that were taken from a presentation from who knows where. I can’t remember him making a solid proposal though.
—Well, supposedly $F$ and the elegant and distinguished representative from $M$ in this country got together to create a new business casually offering the same services as $M$. The Machiavellian plan is to consist of, firstly, breaking the current contract and then miraculously appearing to save our skin, counting on the fact that there is no national competition that can offer a service of this kind.
—It sounds crazy, there’s a lot of loose ends, but we can’t discard something like this. Someone must have said too much.
—It’s the only way.
—Conversely, it’s hard to make up such an unbelievable story if there wasn’t a base for it, when at least it explains what is going on. However, we can’t act on a rumour like this.
—What do we do?
—Discussing it with the supposed conspirators is out of the question. I can see no other option except for speaking directly to the General Director of the company. Get me his telephone number, we’ll have to call him early tomorrow morning due to the time difference.

The next day it was not even necessary to raise the issue of non-compliance with the General Director, not only did he know about it, but without waiting to find out the reason for the call, he immediately apologised for the shortcomings, failing to understand why they had not been remedied, something he said he was personally concerned to resolve.

Faced with this attitude and breaking a bit of the expected protocol of treatment in such situations, with the usual warning about the scepticism that these sources de-
serve, I proceeded to talk to him about the rumour making the rounds in the institution.

There was dead silence for a few seconds.

—I’ll be on a flight to Mexico tomorrow, you’ll hear from me soon.

The news came a few days later, including the replacement of M’s representative in Mexico. From then on, the relationship with the company worked as it had always done. We never really knew what was behind it, the important thing is that the issues were resolved.

**TRAINING**

Making use of the most advanced technology and equipment and being able to adopt state-of-the-art methodologies in essence required trained personnel. The diagnosis of the situation in this area presented a scenario in which, due to the specialisation and often uniqueness of the different areas of INEGI’s knowledge, it was not possible to find graduates of academic institutions who already had such a level of preparation, as it can often only be acquired through working directly on one of the projects.

It is not an exaggeration to say that no one is taught how to undertake a census at university, that if anything one can acquire the basic knowledge there and then really learn in practice what is involved in organising and carrying out an operation of this kind.

Another problem stemmed from the scarcity of institutions, universities or otherwise, that could offer training in these areas in the region. The U.S. Census Bureau had a training centre at the time *the School for Applied Statistics and...*
Data Processing Technology) that offered a course in Spanish on survey taking to Latin American students in Washington D.C. The inherent difficulties of doing field work in a city that, at least at that time, had no uniform Spanish-speaking population areas and the problems of training in a foreign language - which is still rarely mastered by staff from Latin American offices - were compounded by the very high cost factor for a programme in a place like the capital of the United States of America (USA).

The Organization of American States’ (OAS) Inter-American Statistical Training Centre (CIENES), which had previously enjoyed widespread prestige, had significantly reduced the number of courses it offered due to OAS budget reductions and, in any case, could not meet the needs on such a scale as required by INEGI for the training of all its staff.

There were some courses offered by the Spanish Statistics Office through the European Centre for the Training of Statisticians from Developing Countries (CESD-Madrid), which were also far from meeting the needs of the comprehensive training programme planned for INEGI.

The experience of the French National Institute of Statistics and Economic Studies (INSEE), with which INEGI had been in contact since before its creation, was explored. INSEE had a scheme for training and education of its staff in conjunction with the French engineering school (Grand École) specialising in statistics and mathematics, the École Nationale de la Statistique et de l’analyse de l’information (ENSAI). They also had a programme in cooperation with the French ex-colonies through which they trained their staff. However, this scheme also failed to offer a solution to the Institute’s requirements.

After reviewing these programmes, it was concluded that in order to meet the objectives set by INEGI it was necessary to tailor and directly implement a programme with the quality and variety of courses required.

INEGI carried out a needs assessment and a staff census internally, in which it found that there was a high number of people
who had begun their professional career at the Institute before completing a university degree and who, for various circumstances (including their work occupation), had not been able to conclude their formal studies. In most cases, they were highly knowledgeable and efficient in their functions, but they lacked some basis for formal preparation, as well as recognition of their studies.

Once the possibility of finding external institutions or programmes that could meet the Institute’s training needs was ruled out, an ambitious scheme was created internally, called the Integrated Training, Education and Research Programme (PICFI). The previous and relatively small area that existed for this activity became the Training Directorate, attached first to the Executive Coordination (1989) and later to the Administrative Coordination of INEGI (1992). Fernando Medina, who had previously worked in the Directorate General of Statistics (DGE), was responsible for the organising of PICFI.

With the information gathered in close contact with the INEGI Directorates-General, the first training programme was developed in 1989 with four short courses and a series of diplomas and workshops. In addition, a course was designed for INEGI’s internal instructors to which the institution’s directors were invited, many of whom enthusiastically joined in this effort to prepare the Institute’s staff; thus, it was not uncommon to see people like Roy Campos and Eduardo Sojo giving classes, just to mention a few names. More than 500 internal specialists were trained as instructors and there were more than 180 external teachers.

By 1989, PICFI is already running 44 courses per year attended by 921 people and, by 1990, this figure will increase to 130 courses involving 2,345 students.

In July 1993, Pedro Aspe, then Minister of the Treasury, formally inaugurated the INEGI Training centre, with the capacity to

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6 INEGI, 125 años de la Dirección General de Estadística, p. 203.
From left to right: Miguel Cervera, Mario Palma, Fernando Medina, Carlos Jarque, Víctor Guerrero, Mario Rodarte†, Pedro Aspe, Fernando Zepeda, Juan Lobo, Antonio Puig, Jorge Ventura & Pablo Casillas.

simultaneously hold 340 participants, a computer centre, a conference room, as well as cubicles for professors and researchers.\footnote{Maria Elena Flores Maldonado, “La capacitación en la modernización de la actividad geográfica del INEGI”, in \textit{La Geografía ante la globalización. Resumen de ponencias} (Mexico: INEGI, 1994).}

One of the first internationally organised programmes was the Course on Sampling Survey Methods which, in association with the U.S. Census Bureau, was moved to Aguascalientes in 1990. This measure brought an immediate reduction in costs, allowing a greater number of INEGI students to attend and, above all, offered a four-week theoretical-practical course in an environment closer resembling the reality of Latin America’s needs, as it included, in addition to the theoretical part of sampling methods and the design of surveys and questionnaires, their application to real populations in

The inauguration of the INEGI Training Centre (Aguascalientes, Mexico, July 1993)
municipalities in the state of Aguascalientes, whose results were subsequently processed and analysed by the participants. The course was a success in Latin America and scholarships were obtained from the United Nations Development Programme (UNDP) and the Mexican Ministry of Foreign Affairs (SRE) to support the first students. In view of these results, the U.S. Census Bureau decided to entrust the entire course to INEGI, which took charge from 1992.

In addition, English courses for staff in 12 modules and computer training programmes are initiated. From 1990, together with the Economic Commission for Latin America and the Caribbean (ECLAC), the International Workshop on Poverty Measurement was organised, lasting for two weeks. This will be followed by the Workshop on Labour Market Measurement, in coordination with the International Labour Organisation (ILO), and a Course on Automated Cartography organised jointly with the Agustín Codazzi Geographical Institute of Colombia and the National Institute of Geographic and Forestry Information of France (IGN).

![PICFI-Trained students](image)

Practically any thematic area that was the object of INEGI’s programmes had a possibility of training for its personnel, and more than 300 were covered as such. By 1998, a total of 47,356 students were trained, with a large number of them enrolled in more than one course (see graph).8

In total, over the first 10 years of PICFI’s operation, 19,232 training actions (courses, workshops, diplomas and external postgraduate support) were completed, covering a total of 261,292 courses/personnel with employees of INEGI and other national institutions. In addition, 1,956 specialists from Latin America and the Caribbean attended some of the 85 international courses that were given, many of them staying at the Accommodation Centre, which was built as part of the programme of decentralisation to the city of Aguascalientes.9

The priorities of PICFI were reconsidered in the early 2000s. For 2008, it is to be retooled as the institution’s training programme and has been reconfigured in recent years in line with the Institute’s current needs, taking advantage of the benefits offered by current technology to access online training programmes from the workplace itself; thus avoiding travel costs, either for instructors or attendees, a relevant factor in an institution with staff distributed throughout the country.

Moreover, there is now an extensive training programme that has even developed international courses, such as the online course for conducting victimisation surveys, which is offered to staff from different countries in both Spanish and English. This course, the first of its kind at the international level, is being developed by the United Nations Office on Drugs and Crime (UNODC)-INEGI Centre of Excellence, in collaboration with the Institute’s Training Directorate, and has been widely accepted in Latin America and the Caribbean.

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9 Idem.
NATIONAL AND INTERNATIONAL AGREEMENTS

This heading includes the promotion of INEGI’s interaction with other actors both nationally and internationally.

National
In order to provide a better public information service, it was considered important to approach users and respondents with the purpose of understanding and learning of their information needs and developing corresponding programmes. In this way, a strong rapprochement was promoted with the Federal Public Administration (APF), state and municipal governments, business, social and professional organisations, as well as with academia. An item on statistical and geographic projects was included in the development agreements of the Federation with the states under which state statistical yearbooks were prepared in each entity of the country, as well as information notebooks both essential for timely municipal and regional planning.10

Visits to all the governors - initiated since the founding of INEGI - continued in order to provide relevant information from their states and to create local awareness of the importance and usefulness of the information produced by the Institute. Working meetings were also held at INEGI to present the programmes to top private sector organisations. In practice, the doors of the Institute were opened to visits by citizens and students, from the most basic level, for whom exhibitions and appropriate material on the use of information were prepared.

In a generalised effort to disseminate the Institute’s activities, institutional work was made known directly to the judicial and legislative powers.11 Thus, INEGI informed a wide range of the public about its role and what it offered to Mexican society.

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10 INEGI, 125 años de la Dirección General de Estadística, p. 204.
International

Statistics and Geography are two disciplines that have been characterised, in addition to their complexity, by their dynamic global development in recent decades. The immense variety of subjects they deal with and the technological advances related to their production, as well as the natural globalisation of information, require production agencies that strive to remain at the forefront cooperating and exchanging experiences, knowledge and understanding at an international level.

Since its creation, INEGI has sought to know what is being done in the most advanced countries in the world in its different fields. Now, a particularly active role is to be developed in the global sphere that would eventually create prestige bring about its participation as one of the leading institutions in various fields and to providing technical assistance to numerous countries.

INEGI chaired the Inter-American Statistical Conference (ISC) from 1986 to 1990, which, as its name suggests, brought together the statistical offices of the entire American continent and was originally the most important regional statistical cooperation body under the organisational structure of the OAS. During this period, priority was given to the design and planning of the 1990 Census Round, and in November 1990, the Tenth ISC was held in the Multipurpose Hall of the recently inaugurated INEGI headquarters in Aguascalientes, with the presence of the OAS Secretary General, João Baena Soares, an unprecedented event for this type of meeting outside its headquarters in Washington. It was the first international conference to be held in the still relatively unknown INEGI headquarters and host city.

These meetings were originally coordinated, as we have seen, under the auspices of the OAS, with ECLAC participating as an invited body. As time went by, and as the OAS budget for statistics decreased, countries considered the convenience of exclusively entrusting ECLAC with its secretariat, in accordance with the scheme operating in other regions of the world where the respective Regional Economic Commission of the United Nations (UN) provides the secretariat for regional statistical conferences. This was a politically complicated process, in which INEGI exercised careful
leadership, first from the Presidency and then as an active member of the ISC, to achieve the transition, which in the first stage led to the organisation of meetings that were called joint OAS-ECLAC meetings on statistical matters. To this end, on September 7, 1993, the Agreement on Cooperation in Statistical Matters was signed between the United Nations System, the General Secretariat of the OAS and ECLAC with the aim of jointly organising meetings every two years on an intergovernmental basis at ECLAC headquarters in Santiago, Chile. The first one under this format took place in October, 1994.

A few years later, from September 16 to 18, 1998 at OAS headquarters, a meeting between the Permanent Executive Committee of the OAS Inter-American Council for Integral Development (CEPCIDI) and ISC, represented by Mexico through INEGI and delegates from the USA, Canada, Peru, Ecuador, Costa Rica and Brazil, took place. There, it was recommended that the region’s statistical activities be integrated into a single body within the ECLAC

Attendees of the Tenth Inter-American Statistical Conference (Aguascalientes, Mexico, November 1990)

In the first row Pedro Sáenz (director of Statistics in CEPAL), Mario Palma (administrative coordinator of INEGI), Miguel A. Barberena (governor of Aguascalientes), João Baena Soares (secretary general of the OAS), Carlos Jarque (president of INEGI), Javier Barros Valero (deputy-minister of SRE), William Seltzer (director of the UNSD), Miguel Cervera (DGE-INEGI), accompanied by directors and presidents of statistical agencies from across the continent can be observed.
framework, similar to those operating in other regions under the leadership of the respective UN regional economic commissions. The proposed organisation of the new scheme was entrusted to the statistical offices of Canada, Peru and Mexico.

The Statistical Conference of the Americas (SCA) was finally established in 2000, by ECLAC resolution 580(XXVIII) and UN Economic and Social Council (ECOSOC) resolution 2000/7, as a subsidiary body of the UN to contribute to the progress of statistical policies and activities in the region.

Therefore, the regional cooperation scheme currently in force was defined, in which INEGI participated actively - and it could be said somewhat patiently - to achieve this change in the region, which has made it possible to conduct international cooperation activities in statistics through channels that ensure priority and attention from the corresponding international organisations. Over the years, INEGI has continued to participate in this forum, where it has headed a large number of the specialised groups. Between the years 2005-2007, the SCA was chaired by Gilberto Calvillo, president of INEGI, and from 2015 to 2017, by the author of this work.12

As indicated in previous chapters, the United Nations Statistical Commission (UNSC), established in 1947 by ECOSOC, is the highest body of the global statistical system at government level. It meets in March of every year in New York, bringing together the heads of national statistical offices (NSOs) from all over the world, in addition to including other international bodies active in statistics as guests. INEGI has been a regular attendee at these meetings since 1989 and has actively participated in the main groups that have been organised within it since then, which deal with practically all statistical issues: population, migration, environmental accounting, finance, international trade, prices, business activities, crime and drugs, censuses, education, and a wide range of other issues.

In recognition of INEGI’s intense activity in the Commission, the Institute has been part of the group of countries that make up the Commission’s Bureau on multiple occasions and its presidents have been elected to chair the Commission more than once: Carlos Jarque in 1997 and Gilberto Calvillo in 2006 and 2007. Julio Santaella has been a member of the Bureau since 2018.

One of the statistical forums that has distinguished itself through the quality of its programmes and the high level of the participants in its working groups is that organised jointly by the Organisation for Economic Co-operation and Development (OECD) and by the Conference of European Statisticians of the United Nations Economic Commission for Europe (UNECE), which alternate their meetings between Paris (OECD) and Geneva (UNECE), along with Eurostat’s important participation. INEGI has attended this forum since 1991, a few years before Mexico was formally invited to join the OECD (April 14, 1994) and participated actively in the Permanent Group of Deputy Ministries, coordinated by the SRE, in the work previous to joining the body, where it was in charge of providing statistical information to support the documents required for the process of becoming a member of the OECD.

Although INEGI does not come from one of the most developed countries of these organisations, it has played an important role in their work, which continues today, as we will see later on when referring to the institution’s current activities.

The International Statistical Institute (ISI) was founded in 1885 and brings together statistical professionals from around the world, whether they are practitioners of official statistics, academics, researchers or from the private sector; its objective is the development and improvement of methodologies and their dissemination worldwide. Its biennial meetings are, in name and practice, the World Statistics Congress and have been held since the 19th century.

INEGI has been an institutional member since 1992 and in 1994 signed an agreement to print and distribute the ISI’s International Statistical Review (IS Review), which disseminates and promotes statistical methodologies and studies worldwide.
This agreement was negotiated and signed with Zoltan Kenessey, then Director General of the ISI, who promoted INEGI's participation in many of the organisation’s activities. The journal was printed three times a year in INEGI’s graphic workshops with a print run of 6 thousand copies per edition, from where it was distributed to individuals and NSOs in more than 130 countries; there was also an extra print run that was sent to the Mexican Association of Statistics for delivery to the national statistical community. This agreement was concluded in 2002.

**Egyptian odyssey**

In 1991, the World Statistics Congress (WSC) was organised by the ISI in Cairo, in coordination with local statistical authorities. It was the first event of this type in which INEGI participated intensely: an institutional exhibition stand was set up with publications and other products that were entering into use at that time, such as diskettes. In addition, the president of INEGI, Carlos Jarque, was the keynote speaker at the traditional plenary conference, at the invitation of Gunnar Kulldorff, then president of the ISI, one of the major events of the Congress. His presentation was dedicated in honour of Prasantra Chandra Mahalanobis, the famous Indian statistician, and the theme chosen was INEGI’s modernisation programme, which by then had already been in action for two and a half years.

The INEGI delegation, which would also participate in various seminars and panels, was made up, together with the President of INEGI, by Eduardo Sojo (technical director), Mario Rodarte† (executive coordinator) and by the author of this book (administrative coordinator).

Preparations for participation in the Congress began weeks in advance. The keynote speech would be supported by a slide show, accompanied by a printed publication in English of the subjects to be discussed, which would be distributed to attendees. All the materials were carried personally by the members of the delegation as part of their luggage.
Once settled in our hotel, the three delegates to arrive first began to organise the logistic details concerning, above all, the exhibition stand - which was done in coordination and with the support of the Mexican Embassy in Egypt - as well as everything else conference-related. For the latter, we booked an office in the business centre of the same hotel so that we could work on the final revisions and the necessary rehearsals. At that pre-modern time, it was necessary to request one of the so-called carousels, which was the technology still used to present slides.

The first (small) incident, which we fortunately discovered in time, occurred when we unpacked the prints: they had not dried completely and when we flicked through them they left noticeable traces of ink in the reader’s hands. It was the first and probably the only case in which the drying process of an INEGI publication would be completed on the balconies of a hotel in the middle of the desert on the banks of the river Nile. But this was the least of it.

The next day, the day before the opening of the Congress, the advance party showed up at the convention centre in order to supervise the installation of the stand where we would take turns attending to the visitors and, in addition, we went to check out the room where the keynote conference would take place the following day.

At first glance, the room met the basic space and comfort requirements for a large plenary meeting. What was nowhere to be seen was the essential carousel, so we went to the person who, with some difficulties in translation, was responsible for the logistics of the events in the convention centre.

—So, what you’re saying is that you need a carousel for the main conference room, what’s that then?
—Well, it’s a device where some slides are placed moving in a circular way towards a light pipe that then projects them on a screen (there actually was a screen).
—¡Ah! Yes, got it. Not to worry, tomorrow there will be one in the conference room.
—Could we see it?
—Follow me.

That’s what we did for a few hundred meters until our interlocutor stopped in front of a closed door.

—There it is.
—Really... great, can we see it?
—I haven’t got the key, but don’t worry, tomorrow it’ll be wherever you need it.

There was no way to get him to open the door, so we couldn’t tell if such equipment even existed, let alone if it worked.

—It’s highly doubtful that the equipment will appear tomorrow.
—Better not risk it, we should look for one elsewhere.

So, we went to the hotel’s own business centre to ask to take the carousel they had given us, but we were told that this was impossible as it was forbidden to take equipment out of the hotel.

It was too late to try and buy one and we had no idea where we could do so, so regretting having asked - because of the possible plea of innocence - we decided to borrow the hotel’s carousel for a while, after all what could happen if we were careful and returned it in a few hours; besides, the office we had booked was still set aside for another day with all the equipment.

The first thing was to get a bag big enough so that the transported object could not be seen. The intrepid triplet was arranged in such a formation that the one carrying the precious cargo was in the middle - responsibility assigned to luck and not, as you might think, by hierarchical rank -
covered on each flank by another of his colleagues. All three in the natural attitude of carefree tourists between one shopping session and the next.

As such, we arrived successfully at the conference centre.

It was no surprise not to find the promised piece of equipment in the conference hall. The logistics manager had vanished without a trace, so we proceeded to arrange the necessary on our own.

The plan was that MR would be in charge of the slides, following the course of CJ’s conference, and that once the talk started, ES and MP would distribute the leaflets among the audience.

However, we had barely got started when we were interrupted by what appeared to be a security officer who, despite the fact that the room was partially dark, had reacted with unusual efficiency to stop an unpermitted activity.

—You can’t distribute printed material without prior authorisation.
—But it’s material from the conference being held.
—You need authorisation. Give me a copy and I’ll check with the General, meanwhile stay here and don’t distribute anything.

Apparently, we had been censored, even being at an international scientific event!

The official referred to someone with an important façade, who was in the room among the public. He reviewed the document by the light of a small lamp and nodded his head to the instruction that was soon passed on to us: we could continue with our distribution, he apparently didn’t consider our material subversive.
The presentation ended successfully and without major incidents; as soon as we were able to, we started back to our hotel, in a silence that showed the shared concern about the possibility of finding some other unexpected incident in this completely alien environment. We could only relax once the carousel was safe.

—I think taking the equipment was the least of our worries.
—You say that because you don’t know what the punishment for theft is here.
—Well, what is it?
—They cut one of your hands off. At least the first-time round you get to choose which hand.
—Why didn’t you mention anything earlier?!
—It wasn’t worth worrying you, besides you had enough on your plate carrying the corpus delicti. What’s more, distress shows easily and gives you away.

Attendees of the IAOS-IASS Conference on Statistics for Economic and Social Development (Aguascalientes, Mexico, September 1998)

The international community of official statistics; among others: Carlos Jarque (Mexico), Hermann Habermann (USA), Katherine Wallman (USA), Jean Louis Bodin (France), Willem de Vries (Holland), Olav Ljones (Norway), Hallgrimur Snorrason (Iceland) & Evelio Fabbroni (Argentina).
In 1998, INEGI organised the joint meeting of two sister associations of the ISI, the International Association for Official Statistics (IAOS) and the International Association of Survey Statisticians (IASS), in Aguascalientes under the title Statistics for Economic and Social Development from September 1-4 with the participation of more than 300 people from 70 countries. The President of INEGI served as Vice-President of the ISI in the 1994-1996 biennium.

Since 1989, INEGI has strengthened its relations with the Pan-American Institute of Geography and History (PAIGH) based in Mexico City, a specialised agency of the OAS dedicated to the generation and training of skills in the Latin American and Caribbean region in Geography, Cartography, Geophysics and History. INEGI has actively participated in its commissions on Geography and Cartography and organised the 27th Meeting of the PAIGH’s Directing Council in Aguascalientes, with the attendance of 20 countries from across the region from January 22 to 25, 1991.

Other important international events on topics that were pioneering in the world of statistics would converge on INEGI. Thus, in 1991, the Meeting of Women in Internal Migration was held, organised in collaboration with the United Nations Statistics Division (UNSD), with the assistance of 22 experts from 10 countries, and in May 1992 the Sub-regional Seminar on Training in Statistical and Informatics Techniques on Drugs in the Latin American and Caribbean Region was held with the support of the Inter-American Drug Abuse Control Commission and the participation of representatives from nine countries in the region.

Of particular importance in the framework of the review of the System of National Accounts (SNA) that was carried out worldwide in the early 1990s promoted by the UNSD and other international bodies, two meetings on this subject were held in 1992 and 1993, in which INEGI acted as organiser and host. In October 1992, the Interregional Meeting for the Revision of the System of National Accounts was held together with the UNSD and the Inter-Secretariat Working Group on National Accounts composed of the OECD, the World Bank, ECLAC, Eurostat and the International
The results of this interregional meeting were added to the agreements reached at other regional events to arrive at the new SNA framework that was adopted by the UNSC at its Twenty-seventh session, held from February 27 to March 4, 1993, which included the measurement of green GDP.

As a result of this approval and in order to begin the process of implementing the new framework in the region, the Meeting on the (New) System of National Accounts was held at INEGI in May 1993, organised jointly with the Centre for Latin American Monetary Studies and with the participation of 30 specialists from seven Central American countries.

INEGI began to develop programmes with nations from all continents and soon numerous delegations started visiting the offices to see the projects carried out in the institution. Through the continent’s multilateral conferences, relations with countries in the region were strengthened.

For reasons of geographical proximity and the increasingly clear possibility of a free trade agreement being signed with the USA and Canada, cooperation with the statistical offices of these countries, which have longstanding and accredited national and international information production agencies, became of particular importance.

Hermann Habermann, then head of the Department of Statistics of the US Office of Management and Budget (OMB) - which coordinates the various US statistical agencies and holds the title of Chief Statistician, among others - initiates the first contacts with Statistics Canada and INEGI to establish a framework for tripartite cooperation. In agreement with Canada, it was decided
that the first meeting would be between the American agencies and INEGI, and the second stage was to integrate them into the group.

Thus, in 1991, what was called the First Bilateral Cooperation Meeting between INEGI and the United States Statistical Offices was held in Washington, D.C. with the aim of initiating the exchange of methodologies for the production of information. It was attended by a work team headed by the President of INEGI, Carlos Jarque, and which included Eduardo Sojo, Technical Director, Roy Campos, Director of Surveys, and Fernando Zepeda, General Director of Dissemination.

To a certain extent, it proved to INEGI that its programmes and methodologies were on a par with the most accredited offices in the world. The meeting in which both parties presented their programmes and, more importantly, how they were carried out and their methodological basis was a success in every aspect. From there, doors were opened with the American agencies which, in turn, or-
ganised visits to Aguascalientes to become directly acquainted with INEGI. Soon Canada would join the group. Any scepticism, if it existed at any time, disappeared from that meeting onwards.

This first event will lead to working meetings between the three countries, which will begin in 1993 drawing up the economic classifications that will in turn lead to the construction of the North American Industry Classification System (NAICS) in the light of the imminent signing of the free trade agreement between the three nations.

The NAICS, which was finalised in 1997, is not limited, as its name might suggest, to the industrial sector, as it covers all economic activities, whether agricultural or service activities, and homogenises them among the three countries. It is the single framework for the collection, analysis and presentation of economic statistics. It is the reference basis for the compilation of national accounts and is therefore of vital importance for all economic statistics. Due to the dynamism of the economy and the changes that have occurred over time in each sector of economic activity, the NAICS has been revised periodically, most recently in 2018.\textsuperscript{14}

In 1997, INEGI led the UN National Cartographic Conference, responsible for promoting cartographic management for the environment and human settlements (habitat).\textsuperscript{15}

NEW TECHNICAL AREAS

In the context of institutional modernisation, several areas were created for the carrying out of required functions; principally the aforementioned Training Directorate, the Coordination of New Product Development, established in 1990, and the General Directorate of Cadastral Mapping, created in 1992 to serve PROCEDE, which is analysed in the next chapter of this book.

\textsuperscript{14} INEGI, Sistema de Clasificación Industrial de América del Norte, México SCIAN 2018 (Mexico: INEGI, 2018).

\textsuperscript{15} INEGI, Historia del Sistema de Cuentas Nacionales de México 1938-2000, p. 64.
The Directorate General for National Accounts, Socioeconomic Studies and Prices was formed in 1993 when these areas were separated from the DGE, which would henceforth be limited to socio-demographic statistics. This would focus the attention of economic matters on a specialised area and would prepare the Institute for the eventual arrival of the function of developing the price indices that the Bank of Mexico (Banxico) still exercised at that time. The transfer of this function to INEGI was already in sight since the decree of autonomy by which, in 1993, the Bank assumed the function of controlling monetary issue and, with it, inflation.

NEW PRODUCTS

A programme was established to improve access to information and its handling by users with the most advanced computer technology of the time and the incorporation of new elements, such as analyses, graphs, charts, maps and other visual aids, in addition to the traditionally tabulated ones. The aim was to produce specialised products that included everything from educational games for children to information for the productive sectors and academia. For the first time, floppy and compact discs were used.

The Automated System of Census Information (SAIC) went on sale in 1990 with the information from the 1986 Economic Censuses (ECs) on 14 diskettes and the operational results of the 1989 EC took up 19. In 1992 the first compact disc was produced with census information called Dynamic Census Consultation or Codex 90 and which offered detailed information from the Eleventh General Population and Housing Census of 1990.

These products - which now seem to belong to another era - were, at the time, innovative and opened up a new era for INEGI in terms of user care which, over time, has been maintained and perfected by making use of the astonishing technological advances of recent decades.

At the end of 1991, INEGI will offer the System for Consultation of Census Information (SCINCE), which combines statistical
information on the main variables of the Population Census with geographical data and has the capacity to generate thematic maps up to the level of basic geostatistical area (AGEB).\textsuperscript{16}

In 1992, a diskette entitled \textit{Survey of Household Income and Expenditure in the Mexico City Metropolitan Area} was made available and the publication of the \textit{Economic Information Bank (BIE)} began, which collected just over 3,000 economic series from different surveys carried out by the Institute, as well as from administrative records and the Mexican System of National Accounts (SCNM). In 1993, the first electronic product of the Agricultural Census appeared: the \textit{Electronic Tabulation Consultation System}.\textsuperscript{17}

By 1994, the use of compact discs is widespread. INEGI is going to publish 12 of them that year, including one on Municipal Statistical and Geographical Information (CIMA), which includes the most relevant results of the Census Round of the 90s with thematic maps, reports, indicators, roads and railways, as well as hydrological features and contour lines on the maps. That year, the \textit{National Accounts of Mexico} and the \textit{Atlas of Mexico in Multimedia} were also published on compact disc.\textsuperscript{18}

These diskettes and compact discs required the use of computers with certain specifications to be able to read them, far from the current ease of access to the INEGI website, where today information is available to any user from a standard personal computer; but, as mentioned, these advances were innovative at the time, as they served to offer a state-of-the-art information service for their time while putting the Institute on the path to taking advantage of the upcoming technological advances as they became available.

In the mid-1990s, INEGI began to provide data to users through the Internet, and in April 1995 launched the first version of its official site, which included - among other products - the BIE’s digital publication, which by 1996 was already disseminating

\begin{itemize}
  \item \textsuperscript{16} \textit{INEGI, 125 años de la Dirección General de Estadística}, p. 212.
  \item \textsuperscript{17} Idem.
  \item \textsuperscript{18} Ibid., p. 213.
\end{itemize}
around 30,000 economic series. An IMF review considered the progress made for the time to be extraordinary. This was the beginning of a collaborative relationship with the IMF, which has continued to this day and which we will discuss in subsequent chapters.

THE FORMATION OF A STATISTICAL AND GEOGRAPHICAL CULTURE

With the aim of extending the use of statistics to wider sectors of the population, mass promotion and awareness campaigns were carried out in the different media outlets (press, radio and television) to publicise the main INEGI programmes and to solicit the participa-

19 Currently, the BIE brings together 140,382 current economic series and more than 321,000 historical series that provide a wide variety of seasonally adjusted and trending information, on a fortnightly, monthly, quarterly or annual basis.

20 Letter from John B. McLenaghan (director of the IMF’s Department of Statistics) intended for Carlos Jarque (president of INEGI) on December 27, 1995. See Anexes at the end of the book.

The inauguration of the INEGI stand at the San Marcos National Fair (Aguascalientes, Mexico, 1994)

From left to right: Otto Granados (state governor), Pedro Aspe & Carlos Jarque.
tion of the population as respondents. At the same time, efforts were made to publicise the products resulting from the census and how this information could benefit people and businesses. User service was reinforced in all offices across the states, a programme of guided visits to the headquarters in Aguascalientes was established and product exhibitions were taken to fairs and conventions throughout the country. INEGI’s stand at the San Marcos National Fair in Aguascalientes became a reference point and one of the most visited by the public. INEGI officials in state and regional offices took on a promotional role for the institution with local governments and the productive, social and academic sectors of each entity.

A NEW NORMATIVE FRAMEWORK

INEGI, as mentioned in the section on decentralisation, transferred administrative functions to its regional directorates and state coordinations allowing them to operate more efficiently in the contracting and local management of human resources, property rentals, minor purchases, etc., while maintaining the regulations and control of major acquisitions in central offices.

With the change of affiliation to the Ministry of Finance and Public Credit (SHCP) on June 16, 1992, an agreement was published in the Official Gazette of the Federation (DOF), establishing the basis for the transfer of resources, personnel, archives and files to from the SHCP to INEGI, through which the administrative autonomy of the institution was formalised, while it would continue as a decentralised body of the Ministry, now with technical and administrative autonomy.

The agreement recognised and formalised most of the administrative operation that INEGI had already been carrying out in practical terms, but it brought about an important consequence,

the creation of the Institute’s union, which until that moment was a section of the SHCP’s union representation and previously the Ministry of Programming and Budget (SPP). As of this decree, INEGI would handle relations with its unionised personnel through this new trade union body, which was constituted a few days after the agreement, on July 8, 1992, with its own sections representing the members of each of the general and regional directorates. This date became INEGI’s Workers’ Day by agreement between the institution and its staff.

Among the administrative policies that INEGI had already been carrying out since 1991, opening to public tender the provision of most of the goods and services that the institution hired was included, even in areas where it was not considered mandatory to do so. In this way, institutional insurance and the aforementioned bank leasing to acquire buildings were tendered, among others, being a pioneer in the APF in this aspect.
“... THE QUALITY OF AN INSTITUTION DEPENDS PRIMARILY ON THE PREPARATION AND EXPERIENCE OF ITS EMPLOYEES.”

In 1991, the Institute conceived a professionalisation project for its personnel, which was to be called the Integral Professionalisation System (IPS). It was conceived as an integral system that sought to bring together all aspects of human resource management under a single philosophy, based on the concept that the quality of an institution depends primarily on the preparation and experience of its employees.

The project was based on the following factors: the high technical specialisation of the work; the personnel requiring studies and experience for extended periods; the process of the physical transfer of workers to different places of the Republic with the corresponding individual, family and institutional investment; the local difficulties of finding qualified human resources; as well as the personnel of INEGI finding work opportunities within the institution to plan their professional career.

The IPS included the aspects of recruitment and selection based on quality and specialisation criteria; induction to the INEGI position; performance efficiency; job security; work programme determined by objectives and goals for each worker; professional development programme for the individual within the institution; and training, all under clear rules of operation.

The System applied to all staff up to the level of area director, with the exception of unionised staff, who would continue to be governed by conditions negotiated by their representatives and in accordance with applicable labour legislation.

Access to the IPS was by means of entrance examinations and competitive examinations. It included a seven-ranking tabulator for the same hierarchical level, which made it possible to offer salary incentives according to performance without having to look for another position. Its rules were publicly known, and vacancies were
advertised internally and externally. In addition, the IPS Regulatory Commission was created, composed of the President of the Institute, the general directors, the Administrative Coordinator and the directors of the Human Resources and Training areas. This Commission, in a plenary session, examined the appointments in progress.

For the approval of the IPS, working meetings were held during 1992 and 1993 with the regulatory and civil service areas of the public sector. Finally, it was confirmed in November 1993 by agreement of the Ministry of Finance and Public Credit.

The IPS was an innovative programme at the time for the APF and allowed INEGI to structure the administration of its human resources through a scheme that contained clear and equitable rules offering the institution’s collaborators the possibility of planning their professional career within the institution. It was used as a model in the design of the Civil Service Programme that was implemented at the beginning of the 21st century in the APF and is a precedent for the Institute’s current Professional Career Service, which was established in 2009 in accordance with the Law on the National System of Statistical and Geographical Information (LSNIEG) as a result of INEGI’s process of achieving autonomy. The institution was provided with the experience in managing a civil service and the internal culture associated with the objectives of such a statute.

TOTAL QUALITY

In 1995, the first institutional effort to implement a philosophy of total quality and develop a system of continuous improvement in the Institute was added to the original 10 aspects of the modernisation programme. INEGI was one of the first institutions in the APF to approach a project of this nature with the aim of improving institutional efficiency in general, providing better products and services, as well as promoting the integral professional development of the workers. A programme of information and training in continuous improvement systems was developed for personnel throughout the country as a complement to the previously mentioned modernisation measures.
5.2. The Census Round of the 90’s

In the midst of earthquakes and a complicated relocation process, INEGI was preparing to face a major challenge: the conducting of three consecutive census operations. These were going to be carried out directly by the Institute using its new territorial structure counting on its own offices and staff, without having to coordinate and share responsibilities with other bodies, as had happened in the 1980s.

Already with the 1986 ECs, this working format had been applied successfully gaining useful experience for the planning of the censuses that would begin in 1989. In addition to the new format for the general organisation of the fieldwork, other elements were added to improve the quality of the operations through earlier detailed planning, methodological improvements and the use of computers to process the information.

Thus, in 1986 a Census Directorate was established with a team led by Arturo García Castro, where he brought together Arturo Blancas, responsible for the ECs, Manuel Herrero - one of the institution’s first regional directors (San Luis Potosí) -, as head of the Population and Housing Census, and Rogelio Ramos, who would be in charge of the Agricultural Census. Julián Quiroga, with vast experience in the state of Nuevo León where he had been regional director, joined them as a supervisor and advisor for field operations. This team will be ratified in the change of administration in December 1988, assigning it to the DGE under the charge of Miguel Cervera.

The planning, although it implied carrying out three different censuses, sought to take advantage of synergies so that the work, training and experience would benefit all operatives. Where possible, experienced staff from one census were used to support the next, to give one such example. It is no exaggeration to say that what was at stake in this round was the quality and the very operability of the Statistical Information System because of the quantity and importance of the data that would be obtained from the three censuses and because this universe was going to allow for sampling frames to be used in future INEGI surveys.
ECONOMIC CENSUSES OF 1989

One of the first measures taken was limiting censuses to one per year, so it was decided to bring forward, to 1989, the ECs that would have been carried out in 1991, to the five years of the previous ones (1986), in order to reserve that year for the Agricultural Census. As had already been the case in 1986, the normative, administrative and operational structures of the censuses were integrated as part of INEGI. The ECs were made up of the Thirteenth Industrial Census, the Tenth Commercial Census, the Tenth Services Census, the Eleventh Transport and Communications Census and the Third Fisheries Census.

The strategies were planned based on economic activity and the conducting was done in two phases. The first corresponded to the Integrated Urban Census, carried out from February to April of 1989, with the aim of locating the address and business name of establishments in urban areas and classifying them according to their economic activity. Meanwhile, a count of the country’s urban dwellings was carried out, information that will prove useful for the next population census.\(^\text{22}\)

The second phase was the actual census taking, in which questionnaires were applied according to both economic activity and size of establishment, for which 21 question booklets were used. It consisted of three stages: 1) rural areas from May 15 to July 15, 1989, with information being obtained by sampling from the respective AGEBs; 2) single small establishments from July 3 to September 15; and 3) large and small non-unique establishments from October 16, 1989 to February 28, 1990.

More than 5,500 people participated and were trained, for which purpose 36 manuals, five instructions on filling out questionnaires, teaching guides, auxiliary material and evaluation instruments were produced.\(^\text{23}\)

\(^{22}\) INEGI, 125 años de la Dirección General de Estadística, pp. 206-207.
\(^{23}\) Ibid., p. 207.
The press, radio and television campaign sought to inform and sensitise respondents throughout the country about the stages of the ECs and when visits to establishments would occur, as well as the type of information that would be required of them. Running parallel to the census, a strategy of supervising and evaluating of all activities at each stage was carried out, permanently monitoring progress, incidents and results.

The first preliminary results of the ECs were published only four months after they were completed, in both printed and magnetic (diskette) media.24

THE ELEVENTH GENERAL POPULATION AND HOUSING CENSUS

The Institute had become aware, well in advance, of the challenges presented by the Census, and had to plan carefully for the methodologies to be used and the physical field operation to reach all parts of the country and ensure that the interviews with the inhabitants were properly conducted. All the information collected would have to be processed and presented to the public in a timely manner.

The team responsible for the Census Round began in 1986 with the work of the Population Census. As with the other censuses in this round, the operational and administrative structure of this project was organised amidst the needs of the relocation to Aguascalientes and the budgetary restrictions resulting from the economic crisis experienced by the country on a practically permanently basis over the last years of the Miguel de la Madrid administration (1986-1988).

The preparatory work for the Eleventh General Population and Housing Census began, as we have said, in 1986, when a pilot census was conducted in the cities of León and Irapuato, in the state of Guanajuato, and in Tamazunchale, in the state of San Luis Potosí. Other trials would follow in 1987 and 1988, with two more

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24 Idem.
in 1989. By September 1988 (27 September-October 2), a pilot census was conducted in the then Federal District (now Mexico City); Chicoioapan, State of Mexico; Mexicali, Baja California; and in several rural municipalities in Chiapas. In addition, 50 census tests were carried out on the questions which were accompanied by 10 workshops comprised of users and experts, as well as meetings and seminars to discuss the subject.\textsuperscript{25}

The tests of the application of the questionnaires in real situations with families interviewed in different regions of the country revealed the understanding of questions and the time required in each household, factors directly related to the costs of the Census. This also made it possible to assess the needs for supervision and permanent monitoring of the operation during its implementation in order to resolve any problems that may arise.

The Integrated Urban Census of the 1989 Economic Census was used as an input, providing the number of buildings and houses to be visited, also proving to be of great importance in calculating staffing needs, time requirements and other factors crucial to the success of the Census.

One measure concerning the methodology used to improve the results was the decision to extend the period of the interviews, for the first time, from one to five days. Additionally, the questionnaire was simplified and paid interviewers were hired, as opposed to previous censuses that relied on the civilian population conducting them without remuneration. All of whom were trained in a decentralised manner.\textsuperscript{26}

An intensive communication programme was carried out to inform the entire population of the dates of the undertaking and to solicit their participation and support. Among the actions carried out, 2.5 million spots on radio and television announcing the Census and approximately 5 thousand journalistic notes stand

\textsuperscript{25} Ibid., p. 208.
\textsuperscript{26} Idem.
out. By working with companies, the Census appeared - with its logo, slogan and date - on more than 1.2 billion consumer products and 33 million pay checks, bank statements and service bills.27

A prior enumeration of houses was carried out and a Census Mapping area was established within the DGE to carry out the cartographic updating of the three censuses, implying that for the first time there was a specialised body for mapping aimed at the needs of census operations. This area will be integrated into the Directorate General of Geography (DGG) in 1997.28

In total, 1,722,600 plans and sketches were produced, essential for finding out the physical places to be visited during the Census nationwide.29 The staff of the census will total 656,533 people directly involved in the operation (to which should be added the staff of the central and regional offices who participated in some way in the census).30

For the first time, census topics were included in public school textbooks from second to sixth grade, for which the nation’s teachers were trained with a course where they were given the booklet This Day We Learn from the Census. In addition, communication forms were prepared in indigenous languages to promote the response of these communities.

The Census covered, in the case of housing: number of rooms; building material; availability of kitchen, toilet, mains water, drainage and electricity; fuel used for cooking; type of property or rent; as well as number of occupants and households. On population: age, sex, place of birth, previous residence, number of children born alive, marital status, indigenous language, religion, literacy, school attendance, educational level, activity status, main occupation, work status, hours worked and income.

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27 INEGI, ¡Todos contamos! Así levantamos el Censo, p. 34.
28 INEGI, 125 años de la Dirección General de Estadística, p. 208.
29 INEGI, ¡Todos contamos! Así levantamos el Censo, p. 46.
30 Ibid., p. 32.
The undertaking of the census took place all over the country from May 12-16. The questionnaires were concentrated in the 10 computer units of the regional directorates, where data was captured continuously in three shifts and then collected in the Aguascalientes Computer Centre. The preliminary results were released on July 27 of the same year and the delivery of the final results began on December 13 with the state of Aguascalientes, a delivery deadline never before reached. They were successively presented in each entity of the country until the complete delivery of the printed information of the whole country to the President of the Republic on March 10, 1992.31

The data was presented in printed media and compact discs with a general summary and by state and municipality. All the tabulations were distributed on compact disc, which included the digitised urban cartography.

The Census obtained information from all the localities in the country, regardless of their size or geographical isolation, covering the entire national territory. The total registered population was 81.2 million inhabitants.

After the data were published, doubts were raised by some mayors in the country, who considered that their municipalities appeared to have a smaller population than expected by them. These concerns were directly addressed by the management of INEGI’s central offices and by the state coordinators and regional directors of the cities in question, who explained the operations in detail and analysed and reviewed each case based on the Institute’s databases at the AGEB level. On no occasion were data offered that contradicted the information provided by INEGI which, based on the methods and evidence of the work carried out, successfully defended the figures.

Perhaps the most notorious case occurred in the city of Guadalajara. Although the Governor of Jalisco had accepted the

31 INEGI, ¡Todos contamos! Así levantamos el Censo, p. 48.
figures as soon as they were presented, on the same July 27, by the regional director Gaspar Reza, the municipal president of the state capital, did not want to receive them and, the next day, announced at a press conference that he did not recognise the INEGI data and that he would be taking his own census.

Finally, through the intervention of the Governor, an appointment was obtained, but the Mayor refused to accept the technical arguments and proceeded to conduct a count lacking in any methodological rigour, with a result of 2,400,000 inhabitants, almost 50% higher than that of INEGI of 1,650,205.

A comparison of the data with technical elements and even the conducting of comparative counts in areas chosen by the municipality with the presence of notaries was offered, but nonetheless refused. The Mayor suggested a Solomonic decision to stay at an average figure between the two counts, which was obviously not accepted by INEGI. From that point on, no progress could be made in resolving this issue. The following year, a new municipal administration arrived led by Enrique Dau Flores who, wanting to review the situation of the Census, asked his predecessor for the databases of his exercise to make a technical audit along with those of INEGI. This could not be carried out because the supposed municipal databases never appeared. Finally, the rest of the new administration was complicated by the underground explosion that occurred in Guadalajara at that time, a situation in which INEGI came to the aid of the affected population, as will be explained in Chapter 6.

The new municipal administration that arrived in 1994, headed by César Coll Carabias, although initially sceptical of the figures, was to be convinced of the work of INEGI by participating in close coordination with the Institute in the 1995 Population Count, which it will corroborate, with minimal variation, the 1990 census data, since the capital city not only failed to experience significant population growth, but also presented a slight decrease (by registering 1,633,216 inhabitants), while the popula-
tion increase had moved to the adjacent municipalities (Zapopan, Tonalá, Tlaquepaque and Zapotlanejo).³²

This incident clearly illustrates the need for censuses to be conducted in accordance with appropriate methodologies and with trained personnel who, in turn, are permanently supervised during the execution of the operation. It is essential to have the databases and evidence of the results at the level of localities, AGEB and even blocks. Thus, the large amount and variety of data can be corroborated by other present and future statistics.

Census data, such as the number of children of a certain age who will require vaccinations in a given locality, will be supported during subsequent vaccination campaigns, as will the physical shortages of households detected by census operations in the light of government care programmes in specific locations, to name but a few examples.

Another curious tale

—Well, I’ll leave you all to resolve this; let me know when everything’s in order. Meanwhile, nobody leaves this office.

There was no way of knowing, from the official’s wry smile, whether he was joking or not. So, better we ask questions to find out the size of the mess we were in.

The setting (better to use this word than scene of the crime, because of the future connotations it might acquire) was the office of the Head of Advisors to the Secretary General of Government of one of the most important states of the Republic.

³² Based on the written testimony of Gaspar Reza Maqueo, a document prepared for the author, July 9, 2019.
The cast began with the Secretary General of the Government, who had just issued the above-mentioned warning and who was absent at the time, probably attending to more important matters. The local staff was also made up of the Head of Advisors and a subordinate, probably the person who had made the sums that we were soon to find out did not turn out as expected. On INEGI’s part, the State Coordinator and the one who tells this story.

The background was the 11th General Population and Housing Census of 1990 or, rather, its results in terms of the number of inhabitants of a good number of municipalities in the state in question.

All we knew at the time was that the state authorities were uncomfortable with the figures, but we were not clear as to why, let alone whether there was any argument about it. They simply expressed their concern in rather cryptic language, which could be interpreted as disagreement. The abrupt command made clear, at least, their intention of getting numbers more to their liking.

Finally, we were able to obtain clarity on the subject from the reluctant officials: the state government had agreed, with the local opposition parties, to expand the number of members of the municipal councils with the presumable aim (through a series of parallel provisions) of having members of these parties occupy the majority of these new positions. This measure had been enshrined in a local law and had been based on - and conditioned by - the reasoning that a larger population would require larger municipal councils. The results of the 11th General Population and Housing Census would be the reference for implementing these provisions.

The problem was that at least 30 municipalities failed to reach the indicated population and it seemed that our interlocutors hoped to resolve this by having INEGI alter the Census figures.
Now knowing what this was all about, we proceeded to analyse the population of each of these municipalities and discovered that more than 90% of them had come very close to the goal set by state law and that if the population growth rate they had experienced in previous years was maintained, they would reach it sometime in the next three years of the new municipal administration, which gave them the perfect justification to comply with the increase in the number of people on the council, since during this three years, they would have to serve a greater population at some point.

This is what we told the state officials who accompanied us, who rushed to call their boss informing him that we had found a way out. The latter immediately turned up and, without stripping himself of his seemingly characteristic authoritarian style, proceeded to listen to the proposal.

He then addressed his Chief Advisor in an energetic tone.

—Who came up with this idea?
—Hmmm... over there... the gentlemen.
—And why didn’t you think of this earlier?

As far as we were concerned, they could take ownership of the idea.

We were hardly thanked, but by then all we cared about was concluding with this affair and leaving where we were. Fortunately, this simple solution prevented us from resorting to more heroic measures in defence of the integrity of the data.

Concerns that might denote a certain scepticism about the figures were expressed in various spheres not necessarily resulting from political or other interests, but from a genuine interest in having accurate figures, which is why INEGI dedicated itself to personally serving many users through its officials, while at the same time informing society in general.
A case that clearly demonstrates the importance of this personalised information campaign came to light on the occasion of the visit made by the President of the Institute, accompanied by the author of this book, in 1990 to the still then apostolic delegate, imminent nuncio, Girolamo Prigione, to thank him for the support of the Catholic Church which, as it had done on the occasion of the transfer to Aguascalientes, had promoted the cooperation of the citizens in completing the Census. During this visit, he was given the results of the operation, which he welcomed as useful for the country, as well as for his work, as it allowed him to learn important data from each of the dioceses in which the country is divided.

The apostolic delegate was concerned about the comments of two bishops regarding the population of Ciudad Nezahualcóyotl, on the outskirts of Mexico City, especially the enormous differences between the two points of view, as one considered population to be 2 million inhabitants and the other 3 million, while INEGI had a figure of approximately 1.25 million, so he asked us to help him provide arguments in order to clarify this situation.

In an atmosphere of cordiality - inspired by the shared comment that the factors in the logical equation led to the condition, from the outset, that at least one of them would be wrong and that it would remain to be clarified as to who would be correct or whether both would be incorrect - we proceeded to analyse the population data and the extent of their territory that we brought with us.

This made it possible to infer that, with the figure of 1,256,115 inhabitants established by the Census, Neza should have a population density similar to that of Hong Kong, a place known as one of the most concentrated in the world and characterised by its high buildings, while Neza was seen as lacking in large buildings and probably highly overcrowded for the same reason.

The figures that we did not have with us were those of Hong Kong, and as at the time this could not be easily consulted on the internet or by other means, we opted to check them in the offices and then send a report, but all agreed that the data would be close to what was originally detected.
When we checked the data in the office, it turned out that our comparison was somewhat incorrect, as the population density of Nezahualcóyotl with the population detected by the Census was not similar to that of Hong Kong, but much higher, as in Neza it was over 19,700 inhabitants per km² and in Hong Kong, 5,455.33 Another lesson, this time for the experts, is that one must always check the evidence first.

This was reported to the Monsignor, who - I have the impression - took the opportunity to give lessons on his own initiative. That visit marked the continuation of a very cordial relationship with a person of great culture, political sensitivity and appreciation for our country, and who was always a promoter of INEGI and its work. This fruitful collaboration has been maintained until present day with the Mexican Episcopal Conference, which is served by the Institute, as well as other denominations and any social group, in their information needs.

Over the years, what seemed to be a national sport of calculating the population of cities without reference to official figures gradually disappeared from popular imagination, something that we can attribute, at least initially, to the solidity of this census operation.

The Eleventh General Population and Housing Census of 1990 was marked by another event that would have great relevance for the country’s democratisation process: on August 15 of that year, the Federal Code of Electoral Institutions and Procedures (COFIPE) was published in the DOF, a regulatory norm for the Mexican electoral process at the federal level, and the Federal Electoral Institute (IFE) was created in its Article 68, which entrusted it, among other functions, with the task of integrating the Federal Register of Voters. The IFE was established as an autonomous public body and, although its General Council (which is its highest governing body) at that time was presided over by the Ministry of the Interior, it represented a major advance which, over time, would be consol--

idated towards greater independence of the electoral body in relation to the country’s governments.

The IFE is entrusted with the preparation of a general catalogue of voters from which the Electoral Roll will be derived. This will allow the issuance of voting cards which, eventually to be used to accredit voters in elections, would become a widespread means of identification in the country.

The Electoral Roll and its derivatives, such as the Nominal List of Voters and the Voting Credential, are indispensable for the electoral system as, based on them, the number of ballots, the number and location of boxes, the size of the districts, the number of electoral trainers, etc., are established, which in turn determine the registration of the parties and, ultimately, allow free voting and guarantee the electoral process.\(^{34}\)

Within the IFE, an Executive Directorate of the Federal Register of Voters was established to carry out these functions. COFIPME instructs the use of the total census technique to visit homes in the country and obtain basic information on all Mexicans over 18 years of age (Article 92).

The then existing registers and electoral rolls suffered from numerous flaws which, given the results of the Eleventh General Population and Housing Census of 1990, were even more exposed, making it one of the indispensable shortcomings to be resolved in order to have elections offering guarantees against possible manipulation of the vote.

Emilio Chuayffet was appointed the first director general of IFE and would soon become familiar with the census work of INEGI. That same year he appointed Manuel Herrero, who had

\(^{34}\) Instituto Federal Electoral–Dirección Ejecutiva del Registro Federal de Electores, Informe sobre el estado del Padrón Electoral y la Lista Nominal de Electores en respuesta a la solicitud formulada por el Partido Revolucionario Institucional (Atención a las observaciones y resultados de los programas de revisión y verificación) (Mexico: IFE, Mexico, April, 2012), pp. 3 & 4.
been the director responsible for the 1990 census operation, as executive director of the Federal Register of Voters, a position he held until 1996. Herrero is assisted by part of the INEGI team. The Institute’s recent experience and data thus contributed to another important national process.

THE AGRICULTURAL CENSUS OF 1991


The agricultural census seeks to obtain, through the application of questionnaires throughout the country, basic information on the productive structure of the agricultural and forestry sectors and, in the ejido36 sector, to aid the understanding of existing ejido structure and agricultural communities. In addition, the information allows for the formation of sampling frames that serve as a basis for the development of continuous surveys of these sectors.

The operation was preceded by a pilot census, the first in the history of these censuses, which was carried out in October 1989 in very diverse municipalities in the country: Nava, Coahuila;

36 An ejido is an area of communal land used for agriculture in which community members have a beneficiary interest to land owned by the Mexican State. Farmers granted ejido land can farm it individually in parcels, live, homestead and construct dwellings on the property (usufruct rights), but they do not have a title to it (i.e. they cannot sell, lease, subdivide, mortgage or encumber the property). Although the land awarded to a family cannot be sold it can be handed down to the heirs.
Huatabampo, Sonora; Santiago Papasquiaro, Durango; San Luis de la Paz, Guanajuato; Tecomán, Colima; Chalco, México; Cuetzalan, Puebla; Valladolid, Yucatán; Macuspana, Tabasco; and Milpa Alta, a delegation in the then Federal District. More than 500 people took part in this pilot project and applied 36,000 questionnaires.37

More than half a million manuals were printed for the training and 2,500 video tapes were produced. In the area of dissemination, more than 200 Census Support Committees were formed, and more than 20,000 talks and presentation sessions were held with agricultural, livestock and ejido associations.38

A total of 79,000 people participated in the census project which was conducted from October 1 to 3, 1991. It covered more than 100 million hectares and all of the more than 30,000 ejidos and agrarian communities across the country.

In this way, the universe of production units and sub-units, ejidos and agrarian communities, as well as the conditions of rights and land tenure, were known, in addition to the main agricultural, livestock and forestry products of Mexico. This information and, above all, knowledge and understanding of rural Mexico, plus its technical specialisation in geography, will naturally lead to INEGI being required to measure the ejidos and agrarian communities with PROCEDE, a project that the federal government will begin in 1992 and which we will describe in the following chapter as one of the cases in which the Institute has had relevant participation in programmes, if not outside its technical areas, then outside its traditional work of information production.

OTHER ACTIVITIES AT THE BEGINNING OF THE 1990’S

After the major census operations described above, which in turn followed the change of headquarters, and the many other activ-

38 Idem.
ities we have narrated as part of the modernisation programme, INEGI seemingly does not have to suffer an anti-climax in its institutional life. As we have seen, it would soon have to participate in PROCEDE - a large programme that spanned and transformed the country - and prepare the 1994 Economic Censuses among many other things.

In 1990, the estimation of GDP at current prices began and the study “Estimation of GDP by State. A model of geographical disaggregation 1970-1978” was carried out.39

Also in this year, work began on a pioneering project at the international level called the System of Economic and Environmental Accounting, which in Mexico was called the System of Economic and Ecological Accounts of Mexico (SCEEM), which would expand the concept of assets to introduce natural resources and the environment as economic activities.

This project was carried out with the support of the UNSD, with the participation of Stefan Schweinfeest, future and current director of the UNSD, and Jan Van Tongeren, as well as Ernst Lutz from the World Bank, and a team from INEGI led by María Eugenia Gómez Luna. The work originally began in Francisco Guillén’s office, using one of the few personal computers available at the time within the Institute (Printaform brand) and assisted by Olivetti roll paper calculators,40 which were soon to be replaced by more modern machines. There they developed what would eventually be the green GDP, which led to Mexico becoming the first country in the world to produce environmental figures in its system of national accounts. This research would be published in November 1991 and its results would be included in the UN Manual of the System of National Accounts in 1993.

In 1991, the National Survey on Employment and Training in the Tertiary Sector (ENE CST) was launched in coordination with

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40 Testimony of Francisco Guillén (general director of National Accounts, INEGI), telephone conversation with the author, July 2020.
the Ministries of Tourism (SECTUR) and of Labour and Social Security (STPS), as part of the Labour Training Programme financed by the World Bank. The National Survey on Education, Training and Employment was also carried out with the STPS and, in 1992, the Survey on Employment, Wages, Technology and Training in the Manufacturing Sector (ENESTYC) and the Survey on Micro-Businesses (ENAMIN). That same year, the Survey to Determine the Use of Electrical Energy was carried out with the Federal Electricity Commission (CFE) and, for the first time, the National Survey of Demographic Dynamics (ENADID) was conducted.42

As already mentioned, in 1993 the Directorate General for National Accounting, Socioeconomic Studies and Prices was created (separating it from the DGE), which was left in the hands of Antonio Puig.

In the same year, the National Services Survey was carried out for the first time with the aim of capturing information on the economic aspects of the services provided by the non-financial private sector. The National Survey of Manufacturing Workers (ENTRAM) was also carried out and, together with ECLAC, the Magnitude and Evolution of Poverty in Mexico (1982-1992) was published.

In addition, a separate account is initiated in the SCNM to record the revaluation of assets, a key consequence of inflation.

In 1994, the National Construction Industry Survey was modified to generate information for each state and apply it on a monthly basis. For its part, the Monthly Survey of Commercial Establishments extends its coverage to 33 cities.

As we can see, the number of programmes was increasing and, with the expertise of the human resources and the physical and technological infrastructure available, many of these already

41 INEGI, 125 años de la Dirección General de Estadística, p. 218.
43 INEGI, 125 años de la Dirección General de Estadística, p. 218.
seemed to be part of the normal work schedule of an institution accustomed to them for many years. The available data was already varied and numerous, and in 1994 INEGI, in order to facilitate its use, generated the first version of *Knowing Mexico’s Statistics*.

### 5.3. Continuing through the 1990’s

#### The Economic Censuses of 1994

The 1994 ECs comprised the Fourteenth Industrial, Eleventh Commercial, Eleventh Services and Twelfth Transport censuses. These censuses made it possible to ascertain production value and the inputs used for it, as well as the fixed assets and the personnel employed in one year (1993) when many economic policies implemented in previous years were already in effect and when, additionally, the country was preparing to enter the various processes of globalisation, one of which was the North American Free Trade Agreement (NAFTA), at the time still under negotiation.

Information was collected on economic units engaged in mining, financial and non-financial services, electricity generation and distribution, wholesale and retail trade, transport, communications and manufacturing of all types including in bond (maquiladoras).

Five working groups were established to gather information: Monitoring of Large Establishments (those that provided 80% of production and employed personnel); Transport; Traditional (to attend to medium and small establishments); Difficult Access Rural Locations (which were addressed under the technique of statistical sampling); and Trade (responsible for the most important national companies such as TELMEX, CFE and PEMEX). Each had specific operational strategies coordinated in two major stages: the urban enumeration of establishments, which was carried out

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from April to November 1993, and the census, which was conducted from January to April of 1994.

A total of 309 instructors trained around 22,000 people. In addition to mass communication, particular emphasis was placed on interpersonal communication through presentation sessions, workshops, brochures and other outreach products, of which a total of over 10 million were distributed.

The preliminary results were published in the same year of 1994, six months after the end of the census, and the final results 12 months later.

**GEOGRAPHICAL PROGRAMMES**

In 1994, the Geodesic Mining Sub-Network was completed in coordination with the Ministry of Energy, Mines and Parastatal Industry (SEMIP). National coverage was generated at a scale of 1:250,000 digital space-maps, as well as at 1:1,000,000, which were the first products of the modernisation programme in the area of Geography produced on the basis of satellite images. That same year, the Western Polygon was defined on the Continental Shelf, extending over 200 nautical miles, adding more than 20,000 km² of marine surface to Mexico.⁴⁵

**INTERCENSAL PROGRAMMES**

The periodicity of population censuses, extending to 10 years between each one, led to the development of some inter-census programmes which, without resorting to costly and complex operations such as a census, would allow information to be obtained on a more-timely basis, while also serving as their support.

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Thus, in 1992 the first ENADID was carried out with a sampling framework designed on the basis of the 1990 Census, which included 64,000 homes (2,000 per state), so the information would be representative of each of them. Its objective was to find out the basic components of demographic dynamics in terms of fertility, death and migration. It would also be used to assess deficiencies in administrative records of births and deaths.\textsuperscript{46}

Because of the usefulness of the information generated, a decision was taken to repeat it again five years later. The ENADIDs were included in the work programme of the National Censuses Directorate as intermediate events between the censuses and population counts.

In 1995 the Population and Housing Count was organised for the first time with the aim of generating basic intercensal information on population and housing and updating both demographic and socio-economic statistics. Every household in the country was listed and, in addition, a survey of 2,500 homes per state was also conducted. The subject of the enumeration covered type of housing, availability of drinking water, drainage and electricity, number of regular residents, sex and age, literacy status and indigenous language, while the survey asked about housing characteristics, households, general population, health services, migration, education and economic characteristics.\textsuperscript{47}

The National Coordination of Population and Housing Counts was created to do this, with 323 people and an operational structure of 56,410 people.\textsuperscript{48} The 1995 count resulted in a population of 91.2 million.

In addition to the information it provided, the Count served both to ratify the work of the 1990 Census - which, as we have seen in the case of Guadalajara, allowed the consolidation of the figures and

\textsuperscript{46} INEGI, \textit{125 años de la Dirección General de Estadística}, pp. 220-221.
\textsuperscript{47} \textit{Ibid.}, p. 222.
institutional reputation - and to support the 2000 Census, establishing an information line on population dynamics that is complemented by other operations, such as ENADID. The inter-census population counts (and surveys) are implemented from that year onwards in the INEGI programme and would be subsequently carried out in 2005 and 2015.

In the economic sphere, in 1996 the Large Business and Enterprises Monitoring Programme was developed with the aim of updating the information on these economic units which, although relatively small in number, contributed to almost 90% of total national gross production, covering 50% of the country’s employed personnel. In that year 106,909 units were captured (35% single establishments and 65% enterprises), obtaining information on production, labour, income and business mobility, which resulted in the National Study of Entries and Exits of 1996.

QUALITY AND INDEPENDENCE VINDICATED

Next, we will narrate a significant episode due to its relation with the two aspects that characterise INEGI: the quality of its information and its autonomy.

The context
In 1995, the country was engulfed in one of the greatest economic crises ever reported. The crisis had broken out in December 1994 and brought together all the elements characterising it to a superlative degree: capital flight, inflation, falling GDP, scarcity of reserves, continuous devaluations and, above all, loss of confidence in Mexico. It earned the international title of Tequila Crisis/Effect and spread to other Latin American nations.

Two incidents
The president of the Institute Carlos Jarque was ratified in his post by the new administration, while the crisis was soon to interlink twice with that of INEGI. One of them was unexpected and the result of the fact that the areas of the SHCP, which traditionally were
responsible for the elaboration of the National Development Plan (NDP), were so immersed in the enormous and innumerable problems caused by the economic crisis that the work of the NDP 1995-2000 had been significantly delayed. By March 1995, virtually no progress had been made and its publishing had to be completed by May 31 at the latest, in accordance with the applicable law in force. It was then that President Zedillo turned to INEGI to organise its preparation, acting as its Technical Secretariat, a story which is narrated in Chapter 6 of this book along with other similar commissions given to the Institute during those years.

The other incident, although also unforeseen, has more complex angles and some serendipity as it ended fortunately for INEGI. As part and result of the crisis, economic data and indicators were rapidly decomposing. INEGI continued its production of day-to-day information, adhering to its methodologies and time frames, publishing its results in strict adherence to its technical autonomy.

These were not flattering: GDP in the first quarter of 1995 fell by -1.9% compared to the same quarter of the previous year and in subsequent quarters by -8.6, -7.6 and -6.9%, resulting in a decrease of -6.3% in that year.49 There was no hope for good times to come and any optimism of a rapid recovery soon dissipated.

The data are discussed in cabinet meetings and other forums. Although some comments in passing are leaked to the Institute trying to justify the data debacle through possible failures in data collection, there is never an open claim that would have had to be substantiated against the methodology and evidence that INEGI takes the greatest possible care in reviewing.

It is in this context that INEGI, in November 1995, was informed by the OECD that they had received a request from the Coordination of Advisors of the SHCP for a working group from the World Bank and the OECD to visit Mexico as soon as possible to

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review the methodology of national accounts, as well as the change of reference year that was underway.

It should be noted that the OECD’s statistics department, and in particular its founder and director at the time, Louis Kincannon, was familiar with the SCNM. Even in December 1994 a comprehensive presentation of the SCNM had been made to a working group of OECD national accounts officials visiting INEGI, which had made a very positive impression on its experts, who would be most surprised if a review or audit of the SCNM was required.

The operation was somewhat hastily organised because of the urgency of the SHCP to be carried out immediately; it was composed of two officials of the World Bank: Boris Blazic-Metzner and David Cieslikowski. The OECD, due to the urgency, could not add any supporting official, so it did not attend.

The team visited Mexico from December 4 to 8, 1995 and worked intensively alongside officials from INEGI, SHCP and Banxico in Mexico City and Aguascalientes with an exhaustive agenda to review both the methodology and the operational implementation of the work and its results in what is perhaps the most detailed technical audit carried out of any statistical programme nationwide.

The verdict
The results of the technical audit are presented on December 8 at 5:30 pm at the SHCP, in the presence of the officials of this unit, the World Bank and INEGI who had participated in that working week, with the document *Aide Memoire. Review of current and planned methodology and measures of national accounts of Mexico*.

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50 It is worth highlighting the work of a large number of collaborators from the Directorate General of National Accounts, Socio-Economic Studies and Prices who, amidst high workloads due to the calculations of the September Industrial Activity Indicator, the components of the final quarterly expenditure and the change of base year, found time to respond positively to an audit of all their work. The President of the Institute himself, Antonio Puig, María Eugenia Gómez Luna, Francisco Guillén and Jorge Daudé, supported by the Administrative Coordination, as well as the Director of International Affairs, Pilar García, coordinated the attention to the visitors and Mexican officials who participated.
The conclusions were forceful, the measurements carried out by INEGI were methodologically sound and based on quality information: “In conclusion, the mission believes that the way in which work is conducted by INEGI is excellent, the basic data collected is fully adequate, and current and planned methodology for national accounts compilation meets high standards”\(^{51}\)

The SHCP expressed at the same meeting that the report largely covered the concerns expressed by members of the Economic Cabinet (who were never identified).

INEGI had cut through a crisis that would have damaged, perhaps irredeemably, confidence in the quality of its statistics with the consequent damage to the country and set a precedent for the practice and defence of the quality of its work and its technical autonomy.

However, this incident also showed the limitations of a statute of technical autonomy in a framework of hierarchical dependence on a State Secretariat. The project, which had already been underway for several years before the Institute was constituted as an autonomous constitutional body not subject to the Executive, was seen as the most complete guarantee of INEGI’s independence.

THE SECOND PERIOD OF THE 1990’S

As a result of the cooperation initiated in 1991 with the USA - to which Canada would later be added - and within the framework of NAFTA (which would come into force on January 1, 1994), the three countries represented by the Statistical Office of Canada, the US Committee on Economic Classifications and INEGI are to carry out the task of classifying the region’s economic activities on a unified

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basis, from which the North American Industrial Classification System (NAICS) will emerge. This System, which was agreed upon in Ottawa in December 1996, contains a part common to the three nations and one specific to each country. It replaces the previous classifications of each; in the case of Canada, the Uniform Industrial Classification; in the USA, the Uniform Classification; and in Mexico, the Mexican Classification of Activities and Products (CMAP).52

In addition to enabling standardisation with NAFTA partners, the NAICS aims to provide a single, up-to-date and consistent framework for the collection, analysis and presentation of economic statistics reflecting the structure of the Mexican economy. It is the basis for the generation and presentation of all economic statistics produced by INEGI and the National System of Statistical and Geographic Information (SNIEG).53 As mentioned above, given the dynamism of the economy and the changes occurring in the different sectors of economic activity, the NAICS is regularly reviewed and updated. Its last version corresponds to 2018.

The SCNM works on macroeconomic indicators for the public sector, economic and ecological accounts, the maquila export industry and the tourism sector. In 1997 accounts by institutional sectors were initiated, leading to the publication in 1999 of the document *Accounts by Institutional Sectors 1993-1996*, which covers non-financial corporations, financial companies, government, households and private non-profit institutions, which were presented at the UNSC.54

So-called satellite accounts are also produced, the background to which dates back to the production of environmental accounts. INEGI began to produce these accounts in 1998 for certain economic sectors, analysing their relationship with some of the

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52 INEGI, *125 años de la Dirección General de Estadística*, p. 227.  
main macroeconomic variables, such as their contribution to GDP, investment, intermediate inputs, exports and employed personnel. The *Tourism Satellite Account* was published for the first time in January 1999.

For 1997, the Directorate of National Censuses is divided into the Directorate of Economic Censuses and the Directorate of Population and Housing Censuses. The Coordination of Census Cartography is transferred from the DGE to the DGG.

In 1998, INEGI joined the Programme for the Improvement of Surveys and Measurement of Living Conditions in Latin America and the Caribbean (MECOVI) together with the Inter-American Development Bank (IDB), the World Bank and ECLAC, which led to the organisation of the IV MECOVI Regional Course in 2000 with 34 participants from the region.

In the same year, INEGI adds Environmental Accounting to the SCNM and produces the publication *System of Economic and Ecological Accounts of Mexico 1993-1998*. It also publishes a new product with the profile of large urban conglomerates, the *Cuaderno estadístico de la Zona Metropolitana de la Ciudad de México* (Statistical Notebook of the Mexico City Metropolitan Area).\(^{55}\)

Together with the National Institute for Adult Education (INEA), it also carries out the National Survey on Educational Gap. With STPS, it carried out the National Survey on Employment in Indigenous Areas 1997 and published the *Evaluation of the Training Scholarship Programme, INEGI-STPS*.\(^{56}\)

In August 1999, when Carlos Jarque was appointed Minister of Social Development, Antonio Puig became President of INEGI and Francisco Guillén, Director General of National Accounting, Socioeconomic Studies and Prices.

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\(^{55}\) Ibid., p. 238.

\(^{56}\) INEGI, *Cronología de la Estadística en México (1521-2003)*, p. 73.
Towards the end of the 20th century, INEGI was called upon to head the Year 2000 Computer Conversion Programme (Y2K), which we will describe in the following chapter.

A recapitulation of INEGI in the 1990s (which we could refer to as extended in the style of the English historian Eric Hobsbawm, if we include the year 1989) shows that it was characterised by intense activity as, at the same time as it completed its relocation, it developed numerous programmes for the production of information and a process of modernisation, which would consolidate the quality and prestige of its technical work. This led to commissions outside what could be called its normal or traditional scope of action, which we will refer to in the following chapter.
“On April 22, 1992, we were in the office located on Federalismo (Street) when we heard some shocking noises. We went out onto the terrace and saw a mushroom shaped cloud of smoke, very similar to that seen in the movies after bombings. Without having the slightest idea of what was happening, we quickly turned on the radio and began to hear the terrible news: several streets had exploded and there were hundreds of dead and injured people scattered around the disaster area. People were being asked to help.

So, we prepared any available vans to go to the area, acting as ambulances all day long.

I also contacted Carlos Jarque to inform him of what had happened and to suggest that an urgent flight be made to take aerial photographs of the disaster area. He immediately asked Néstor Duch to carry out this task, which was delivered to the Governor a couple of days later”.

As was the testimony of Gaspar Reza, then Western Regional Director, about the tragedy that befell Guadalajara that day with the bursting of numerous underground pipelines and the relief efforts by INEGI.

On numerous occasions, the Institute has come to the support of both state and municipal governments as well as the federal government when faced with emergencies of various natures, especially natural disasters. INEGI, in particular, has provided maps and aerial photographs and has helped in the gathering of information in the affected areas, as well as in the interviewing of victims. On
this occasion in Guadalajara, due to the gravity and urgency of the situation, the Institute also participated directly in the rescue and relief work.

Soon the Institute will begin to be called upon to participate in programmes that would deviate somewhat from its traditional functions.

By 1992 INEGI had left behind its worst crisis in its still relatively short existence, leading it to relocate its headquarters to another city and had just successfully concluded the Census Round of the 90s. The challenge of providing the country with censuses meeting the highest quality and coverage requirements had tested the institutional model adopted and, of course, the capacity of those responsible for the programmes at all levels of the structure.

At the same time, a process of modernisation was underway that was already reflected not only in these major surveys, but in many other aspects of its activities. The institution was thus consolidating its prestige in both national public administration and among the population in general.

It is in this context that INEGI is going to be required to participate in various national programmes far from the traditional scope of a statistics or geography office, taking the Institute to fields alien to its counterparts in other parts of the world.

There are three such projects for which the federal government, by decision of the President of the Republic, will summon the Institute at that time: the Programme for the Certification of Ejido Land Rights and Titling of Urban Plots (PROCEDE); the National Development Plan 1995-2000; and the National Commission for Information Technology Conversion Year 2000, also referred to as the Y2K Programme.
The 1917 Constitution, the result of the Mexican Revolution - which began in 1910 and extended throughout the following decade, even after the promulgation of the new Magna Carta - includes in its Article 27, in response to peasant claims, the distribution of land being one of its most important postulates. Its provisions on agrarian matters had as its most important and immediate precedent, the Plan de Ayala, issued by Emiliano Zapata in 1911.

Thus, an attempt was made to respond to what were considered to be some of the main causes of the armed movement: the lack of land for the vast majority of the rural population, the exploitation of people and the dispossession of land by latifundistas (owners of large estates at the time), as well as the resulting poverty for the peasant population.

The distribution of land, beginning in some cases in 1912, would lead to the existence of approximately 30,000 ejido and agricultural communities, with more than 1 million hectares distributed by 1990, a little over half the national territory.\(^1\)

The lands that were given in usufruct remained property of the nation, which granted them to a civil corporation: the ejido or the community. The main difference between the two was that the ejido was integrated, either with vacant land or with land, forests and water affected by the federal government, or with privately owned land that went beyond the limits of small ownership, while in the second case, the previous ownership of rights by a community was recognised or restored. The land had to be cultivated personally by its owner and could not be left idle, sold, rented or used as collateral, as it was unseizable. Although it was inalienable, it could be inherited, provided the land had not been fragmented.\(^2\)

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2 Arturo Warman Gryj, “La reforma agraria mexicana: una visión de largo plazo”, Land Reform, Land Settlement and Cooperatives, Number 2 (2003), FAO.
By the final decade of the 20th century, a little over 70 years after the beginning of land distribution, large tracts of land had been given to over 4 million farmers and there was a general consensus that this policy had contributed greatly to the tranquillity of rural Mexico. However, the picture of rural development and the economic advantages it had brought the peasants were not at all praiseworthy, leading to both poverty and economic and technological stagnation, with a major deterioration in the sector.³

The unsustainable long-term mandate of unlimited land distribution generated uncertainty and was a present threat not only to smallholders but even to ejidatarios. Land, despite the legal prohibition, was sold and rented outside the law. Because of all this uncertainty, private investment was scarce, while the relationship between the state and the peasants had acquired a basically clientelist and populist character that lent itself to the profit of political interests. Perhaps the best example of these practices was the National Peasant Confederation (CNC), as one of the most important structures within the dominant political party of those decades (the Institutional Revolutionary Party). As a reflection of this, numerous agrarian organisations, seeing their interests affected, would campaign against PROCEDE, accusing it of privatisation, especially in states like Oaxaca and Chiapas.

Although the minimum size of the plots had been regulated on several occasions, it should be noted, once certification of ejido rights by PROCEDE had begun, the majority of the plots averaged 2.8 hectares.⁴

Particularly problematic was the situation of ejidos adjacent to the urban development of cities and towns, since there was no legal possibility of converting them to urban use, it gave rise in practice to innumerable irregularities, including the incentive to invade ejido lands by establishing urban units and then provoking their

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³ Warman, “La reforma del artículo 27 constitucional”.
⁴ Warman, “La reforma agraria mexicana: una visión de largo plazo”.
regularisation through expropriation, following negotiations by the authorities with the leaders of the land invaders.\textsuperscript{5}

The migration of people from the countryside to cities in Mexico and abroad and the ageing of ejido rights holders - who, lacking their own resources, social security and pensions, remained active as ejidatarios until very advanced ages, thus limiting access to land for younger generations - were a few aspects, among many, of the national agrarian situation at that time.\textsuperscript{6}

It was in this context that the government of Carlos Salinas de Gortari promoted a reform of Article 27 of the Constitution, which radically changed the country’s agrarian policy, cancelling the distribution of land, recognising the legal personality of agrarian units, giving autonomy to ejido assemblies and guaranteeing individual ownership of land, in effect transferring capital to the holders of agrarian rights.\textsuperscript{7}

The reforms opened up the possibility of access to private property on a voluntary basis and free of charge for ejidatarios and community groups. It guaranteed this, but also the previous forms of ejido or communal organisation in case the agrarian units wanted to remain in them. It also provided for joint-stock companies.

The mission and capacity for political operation, which the ruling party still had in those years, led to the reform being approved by the Congress of the Union and the local legislatures, obliged to participate as it was of a constitutional nature.

The Decree to Reform Article 27 of the Constitution was published on January 6, 1992, followed by the Agrarian Law on February 26 of the same year and the Regulations of the Agrarian Law on the Certification of Ejido Land Rights and Titling of Urban Plots on January 6, 1993.

\textsuperscript{5} Guillermo Olivera Lozano, “La reforma al artículo 27 constitucional y la incorporación de las tierras ejidales al mercado legal de suelo urbano en México”, Scripta Nova. Revista Electrónica de Geografía y Ciencias Sociales IX, No. 194 (2005), the University of Barcelona.

\textsuperscript{6} Warman, “La reforma agraria mexicana: una visión de largo plazo.

\textsuperscript{7} Ibid.
Through this decree, the federal government established PROCEDE, whose objective was to give legal certainty to land tenure through the delivery of land certificates and/or rights of proportional use of the common area, as well as urban land titles in favour of individuals with rights to the agrarian community.

Once the basic legal framework was in place, two problems were facing the implementation of the reform: on the one hand, explaining and convincing the ejidatarios of the benefits the changes would bring and, on the other hand - upon agreeing to join the Programme and change its legal status - providing the holders of agrarian rights with certificates and titles to the plots and land. Measurements of these areas had to be taken to clarify their consistency with the documents to be issued. This is where INEGI would appear as one of the key institutions in implementing the reform.

The possible coverage that was initially calculated was 29 thousand agricultural units, 103.8 million hectares (more than half of the country’s territory) with more than 4 million members of the agricultural community. To the vastness of these figures we should add the isolation of many communities, the difficulties and variety of the national orography, as well as the immeasurable legal and documentary complications that had accumulated over decades in the endowments, whether due to errors or agrarian conflicts. To this the differences in the procedures followed in the different states of the Mexican Republic at different times to visualise the magnitude and complexities involved in carrying out this undertaking should be added.

The institutions responsible for the Programme were the Ministry of Agrarian Reform (SRA), in charge of managing the Programme and establishing general policies, as well as helping in the resolution of conflicts; the Agrarian Procurator’s Office (PA), in charge of supporting the internal organisation of the agrarian centres, advising their members, promoting the implementation of the Programme and integrating documents; the National Agrarian Registry (RAN) was responsible for integrating the basic documentation required to regularise land tenure through the registration and certification of geographical products and the issuance of
certificates and property titles; and INEGI was in charge of the technical-operational work to identify and measure land boundaries and areas, as well as to generate the cartography covering what was measured. A National Coordination Committee was established among all the units involved, as the highest authority for the implementation of PROCEDE.\(^8\)

INEGI had just travelled through rural Mexico to carry out the Seventh Agricultural Census in 1991 and was therefore the institution most recently in contact with practically all the peasants and agricultural producers at a national level through its offices across all the states of the country. This in itself was an important factor for the operation of the new programme, in addition to having the technical expertise in Cartography, Topography and Geodesy for land measurement.

Its participation was based on Article 56 of the Agrarian Law, which empowers the RAN to delimit the lands within the agrarian nuclei, for which a specific regulation was established and published in the Official Gazette of the Federation (DOF) on September 25, 1992, and later modified on March 20, 1995.

The institutions set about designing strategies and a work plan of how to address the complex procedures that would be required to successfully carry out PROCEDE. Establishing a working methodology in the ejidos and among the institutions was the first operational obstacle to overcome; then, it would be necessary to measure the plots. The first draft of the procedures to be followed was ready in May 1992; INEGI and the PA carried out the first field tests between July and September, and the technical rules were published in the DOF on September 28 of the same year. After the

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initial experiences and the coordination issues, perhaps natural for a new programme especially considering the complexity of this one in particular, the procedures were revised and refined in mid-1993, which resulted in a functional inter-institutional working scheme that allowed the Programme to advance intensely in its operation with the ejidos and communities in the second half of 1993.

Doubts about the Programme’s reception were soon dispelled by the farmers’ response, as nearly one million ejidatarios from 10,000 ejidos, by decision of their ejido assemblies, joined PROCEDE a year after it began operations.9

Two main work streams were defined: the social stream, with the direct participation of the beneficiaries in their decisions on their incorporation into the Programme through their assemblies, which included the aspects of information on the implications of incorporation and training. This aspect was left to the agricultural sector institutions, although INEGI was also involved, as it was the responsibility of the Institute to explain to the interested parties how the land would be measured, a recurrent question among the ejidatarios. The second aspect was of a technical nature, which consisted of measuring the agricultural communities with their plots and land, falling under the responsibility of INEGI.

For this activity, during 1992 and 1993, the Institute acquired 504 GPS devices (used to locate geodesic points on the earth’s surface), 687 total stations (devices for electronic distance measurement), 1,044 computers, 711 printers, 350 workstations and 2,488 vehicles, among other equipment10 that complemented its already available infrastructure. Thirty-three Automated Cartography Centres (CENCA) and 22 auxiliaries were created to process data directly in each state, as well as for the updated production of plans and the magnetic and digital backup of the information produced.11

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9 Warman, “La reforma agraria mexicana: una visión de largo plazo”.

—¡You need to cancel the purchase of those total stations; the winning provider is guilty of dumping!

It was with these words that the official from the Asian country’s embassy began the meeting, at least until then the world leader in the sale of this type of equipment. The session took place in the office of INEGI’s Administrative Coordinator in Aguascalientes, with at least 10 representatives from the main distribution firms of total stations manufactured within that nation, just 24 hours after the contract was assigned and an almost immediate call from the diplomat in question. It had involved the hurried transfer of this delegation from Mexico City, where the final formalities of the tender had been carried out.

The winning company, of a different nationality from the complainants, had offered a price approximately 70% lower than that of its closest competitor, which could explain the surprise and, above all, the disappointment of their competitors. However, this company, which was internationally known, had complied with all the requirements set out in the public tender, including the submission of the performance bond. Furthermore, the visitors’ request was not accompanied by any documents to support their claim.

The distinguished visitors had to be informed (in the most diplomatic manner) about the impossibility of INEGI deciding on such a situation, so they were suggested to go to the corresponding national or international legal authorities.

Sometime later, we heard the winning company’s version. The secret was related to a previous event: the Berlin Wall had fallen in 1989, leading to the well-known German company X regaining its former factories in East Germany. This had allowed for the production of the equipment with great cost advantages, to which one would have to add the attractive volume requested, in what until then...
we would learn was the largest civilian purchase ever made of this type of equipment in the world.

As it has been, for INEGI it was an example of the benefits of opening the acquisition of goods and services to international public tenders.

In addition to the software included in the equipment, it was necessary to design certain other special programmes in INEGI itself to respond to the needs of a globally unprecedented operation in terms of its dimensions and speed.

It was also necessary to quickly recruit and train staff in order to be able to respond to the large demand for incorporation occurring from the outset. Some INEGI workers, experienced in census operations, held management positions within the programme’s structure. Julián Quiroga was the first director general of PROCEDE, and Arturo Blancas would replace him in 1997 when Quiroga returns as head of the North-eastern Regional Directorate.

The regional directors and part of their management structure would add a further responsibility to their work programmes. For 1994, PROCEDE reached 16,590 people hired within INEGI, its highest figure and gradually decreasing from that year onwards as a reflection of the Programme’s progress. By 1995, the number would be 15,866; 12,460 for 1996, until reaching 4,110 in 2006, the last year of PROCEDE as such, when the Institute’s participation ends.  

For the measurement, INEGI used the so-called Direct and Indirect methods. The first consists of determining coordinates of the vertices of a perimeter using GPS receivers or total stations. In the case of GPS, INEGI personnel placed this equipment at the established limits of the plot, from where the equipment could receive and transmit signals from at least four satellites out of a

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total of 24 available, to obtain timely geodetic positions with a high degree of precision. In the case of the total stations, these obtain distances and angles in electronic form by means of radiation, making them an efficient alternative in inaccessible places due to dense vegetation.

The indirect method is based on the interpretation of aerial photographs to identify the boundaries of the plots and is complementary to the direct method.

Initially, the agricultural authorities contacted the representatives of the agricultural community providing information on PROCEDE, while resolving doubts and reviewing their documentation. It was here that the files began to be integrated and the most common problems facing the Programme were resolved, ranging from complications in obtaining documents to the correct preparation of the assembly minutes. It was necessary to analyse and remove any type of obstacle, especially when there were previous internal or external conflicts.

Once the ejidatarios gave their approval to join PROCEDE in the so-called Information and Acceptance Assembly, INEGI began to formally take measurements, initially completed through field trips accompanied by the ejidatarios or communal farmers using

PROCEDE: Field operations.
a freehand sketch. Subsequently, the measurements were taken with the equipment previously described, where a minimum of two geodetic control points were established in order to obtain the geographical coordinates of the vertices of the plots, terrains, inhabited areas and common land.

One of the consequences of having used these technologically advanced methods - in which a geodetic reference and coordinates are used to establish the precise location of the land - is that, even today, the measurements taken have greater geographical precision than that commonly used in the country’s cadastres and public registers of urban property.

Once the procedures were fine-tuned, work on both the social and technical aspects progressed very quickly. The first mass issuance of certificates took place on January 6, 1994 in several cities of the country and consisted of 197,000 documents delivered to 1,269 ejidos, benefiting 89,846 people. The main event, led by the President of the Republic, was in the Port of Veracruz, as it was the anniversary of the Enactment of the 1915 Agrarian Law in that city by President Venustiano Carranza. Other certificate awarding ceremonies would take place in different cities of the
country during the year, one of them in the INEGI headquarters building in Aguascalientes in the presence of the President of the Republic and the governors of the region. In total, 1,133,962 documents were delivered to 516,770 ejidatarios from 5,422 agrarian communities, in 1994.13

In the following years the whole country was covered. All the ejidos and communities were invited to join the Programme and an overwhelming majority (over 90%) did so. PROCEDE had a finite character: the requirement for its completion in a state was to have regularised (or be in the process of doing so) at least 90% of the social surface area of the state. The first state to finish was Colima, in October 2003, culminating with Chiapas in August 2006, and Oaxaca in October of the same year.


The delivery of certificates from PROCEDE at INEGI headquarters
(Aguascalientes, Mexico, June 22, 1994)

The president Carlos Salinas can be observed, alongside the governors Otto Granados (Aguascalientes) & Carlos Medina Plascencia (Guanajuato), Carlos Rojas (deputy minister of SEDESOL), Arturo Warman (director of the Agrarian Procurator’s Office) & Carlos Jarque (president of INEGI), among others.
On November 17, 2006, the agreement of the Minister of Agrarian Reform, Abelardo Escobar, was published, with signatures from the agrarian procurator, Isaías Rivera, the chief director of the RAN, Rolando Ocampo, and the president of INEGI, Gilberto Calvillo, with which the operational closure and conclusion of PROCEDE was declared.

With this document, 28,454 regularised agricultural communities were completed, to which 326, which were still in process, would be added later for a total of 28,780, or 92.2% of the 31,201 existing in the country. A total of 9,447,347 documents were delivered to prove the legitimate ownership of the land.14

The possibility that the remaining 2,421 communities could subsequently access the benefits of the reform was left open through procedures to be followed with the agricultural authorities. The reasons why most of these agricultural communities were not incorporated were of a legal nature due to the fact that the plans used for the endowment or restitution of land overlapped with others.

The final report of the work carried out by INEGI includes the following totals: 28,822 agricultural nuclei measured, with a total of 5,845,339 plots, 2,821,592 urban plots covering an area of 93,044,474 hectares reflected in 8,798,900 plans.15 The difference in figures between those measured and those regularised is due to the fact that not all the former were able to complete their regularisation at the time of the operational closure of the Programme.

14 Secretaría de la Reforma Agraria (SRA), “Acuerdo por el que se declara el cierre operativo y conclusión del Programa de Certificación de Derechos Ejidales y Titulación de Solares (PROCEDE)”, Diario Oficial de la Federación (DOF), November 17, 2006.
15 INEGI, release no. 1.4.3./A-011/2007, addressed to Armando Rangel Hernández (chief director of the National Agrarian Registry) by Juan Manuel Yglesias (deputy director general of the National Registry of Geographical Information of INEGI) with the objective of finalising the commitments established in the Coordination Bases for the Transfer of PROCEDE Information collected by INEGI to the National Agrarian Registry, April 2, 2007.
PROCEDE, over the course of 14 years, carried out what is probably the largest programme of land privatisation in the world in a similar time frame. Practically half the territory of one of the world’s largest countries, overcoming the natural complications presented by the country’s varied orography and the resistance of a political system that had been in place for seven decades. INEGI was responsible for the measuring and mapping of almost 9 million maps in one of the largest operations in its history, one that was not included in its traditional programme.


In December 1994, just a few days before the new government of President Ernesto Zedillo was sworn in, one of the greatest economic crises the country had experienced in its recent history broke out. It was characterised by a significant devaluation of the currency, capital flight, reduction of reserves, inflation and the collapse of the economy, which was to continue practically throughout the whole of 1995.

The Planning Law (which dates back to 1983) states in Article 4 that it is the responsibility of the Federal Executive to conduct national development planning with the democratic participation of society, for which purpose the National Development Plan (NDP) must be drawn up.

The Ministry of Finance and Public Credit (SHCP) is responsible for preparing the draft of the NDP, which must take into account the proposals of the Federal Public Administration (APF) and state governments, as well as the proposals resulting from the social participation exercises (Article 14). Article 21, which was in force at the time, stipulating a maximum period of six months from the time...
the Presidency was assumed to draw up and publish it, meaning that it had to be ready by May 31, 1995.16

The drafting of the NDP was a complete task in itself, but it also involved the organisation of what the Law calls social participation, which included opening a series of forums throughout the country to experts, academics, public officials and the general population to discuss, analyse and compile proposals. It also required coordinating the opinions of the entire APF and the states.

Normally this work began, even if not formally, before the change of government, but 1994 was a particularly complicated year for the country: it began on the very first day of January with the Zapatista rebellion in Chiapas, continued with the assassinations of the presidential candidate and the secretary general of the official party, and culminated in the economic crisis at the end of the year, entering into 1995 at its peak, with the prospect of an even greater imminent catastrophe and, at times, with no prospect of finding a way out.

Under these circumstances, the work of drawing up the NDP was considerably delayed, and so President Ernesto Zedillo decided to turn to INEGI for support in its implementation.

On March 27, 1995, a cabinet meeting was held with the aim of intensifying the consultation and analysis actions to formulate the NDP; a decision was taken to organise the popular consultation forums throughout the country and the Technical Secretariat in charge of INEGI was integrated to coordinate the work of its elaboration with all the departments, entities, state governments and the population in general.

From a legal standpoint there was no issue, as INEGI was part of the SHCP and the Law gave this function to the Minister

16 It was amended on February 16, 2018 and the obligation of the President is now to send the NDP to the Chamber of Deputies for discussion no later than the last working day of February following the inauguration.
of the SHCP without indicating another specific area within the ministry that would be responsible for assisting him (Article 6 of the Planning Law).

According to the Law, the SHCP was formally in charge of leading the work but, in practice, it was led by the then president of INEGI, Carlos Jarque, who, together with a group of general directors of the Institute, would devote practically their entire time to the development of the Plan with the support of the regional directorates and state coordinations for the consultations in the states of the Republic.

The work began almost 4 months late and there was an immovable deadline to have it ready in just over two months.

Immediately, mobilisation efforts were organised at the inter-institutional level both to prepare the proposals of each sector with the responsible branch secretariats and to start the work of roundtables and workshops throughout the country. Through its territorial structure, INEGI installed letterboxes in all states to receive proposals.

A total of 97 forums and 516 events were held with 12,000 presentations and 300,000 contributions were received from the population in reception centres throughout Mexico.

The INEGI team, in addition to the work of coordination and general organisation of these events, participated in the reviewing of the proposals that each State Secretariat sent with the information from its sector and coordinated, in many cases, with them to reach the final draft.

President Zedillo personally drafted the most important parts of the economic policy. INEGI provided support with information on many of the issues and contributed the demographic analysis that appears as one of the reference premises of the Plan itself.
Under the heading 3.12 *Freedom of Expression and Press and the Right to Information*, in its fourth and final paragraph, the proposal for the full autonomy of the Institute was included as decided upon in the final drafting stages by the then president of INEGI and the author of this book. Judging by the lack of resistance, this proposal must have gone quite unnoticed. Nevertheless, it allowed for the continuation of a project that had begun years ago and that would still take time to come to fruition but that, at least, was already being translated into a proposal within a government programme.


“3.12 Freedom of Expression and Press and the Right to Information

... The Federal Executive branch of government expresses its commitment to propose and adopt effective measures to regularly, timely and sufficiently comply with the right to information. The government of the Republic shall regularly provide economic and social information, generated by the State, to enable citizens to analyse, monitor and evaluate public policies.

In this sense, *it is proposed to promote legal reforms to give full autonomy to INEGI*. Likewise, the public function of preserving and guarding the nation’s assets and archives will be consolidated, and the modalities for the timely delivery of reports and official documentation for their protection and public consultation will be improved.”


The NDP 1995-2000 was presented on May 30, 1995 at the National Museum of Anthropology and History and was published in the *DOF* the following day, May 31.
6.3. Y2K

In mid-1998, a potential problem in computer operations was identified potentially having a major impact worldwide. This originated in an omission in the software programmes that, since their creation decades ago, only contemplated two digits for the years, assuming that they started with the number 19 of the beginning of the years of the 20th century, so that, when starting a new one, many systems would lack the initial digits ‘20’, implying a great risk that equipment would cease to operate correctly, equipment on which the operation of the countries depended, to a great extent.

The omission was due to the need to save memory space, something that today seems surprising given the great development of storage capacities since that time, but which in the initial stages of computer use was a problem faced by programmers on a daily basis as one of the factors most limiting for their work.

The list of possible affected activities was potentially unlimited: the same for nuclear reactors, military security systems, banks, airline flights, medical care in hospitals, pension payments and so on. Moreover, 2000 was a leap year, as if this did not augur extra complications.

The problems were not limited to the computers themselves, but to the large amount of equipment that used, even then, chips to operate, such as elevators, temperature control systems, medical equipment, and again, an endless list of others. The worst thing was that it was impossible to predict with any degree of certainty what would happen, as it was an unprecedented situation in history.

It is in these circumstances that, once again, President Ernesto Zedillo comes to INEGI requesting the coordination of an unexpected programme in the planning not only of the Institute, but of the entire Mexican government.

Although by the end of the 1990s INEGI had largely left behind its role as the federal government’s IT regulator, it still had the knowledge and experience in an area of which it still retains
the initials in its name to this day, as well as the capacity to coor-
dinate with other areas of the APF and the private and social sec-
tors, as demonstrated in the previous assignments reported here.

On July 3, 1998, President Zedillo installed the National Com-
mission for IT Conversion in the López Mateos Hall of the Los Pinos
Official Residence, with the aim of coordinating and agreeing on ac-
tivities between the different social and economic sectors in order to
make timely proposals for IT systems, equipment and components
for the proper recording of the years from 2000 onwards.17

The Presidency of the Commission was held by Carlos Jarque,
head of INEGI. The Ministry of the General Comptroller was charged
with coordinating and supervising the APF, while the Ministry of
Trade and Industrial Development (SECOFI) was responsible for
promoting actions with the industrial and commercial sectors.

The APF would continue the work begun on the basis of the
basic guidelines established in April 1997, for which some institu-
tions (such as INEGI, SHCP, Banxico and the National Banking and
Securities Commission) had already begun to review and adapt
their systems accordingly.

On the public sector side, the Commission was made up
of the Ministries of State and a representative of the Presidency
of the Republic; the private sector was entrusted to the Bank of
Mexico, specifically its Director General of Information Technol-
ogy, Gilberto Calvillo - the future President of INEGI - who was to
coordinate with 400 banking institutions, brokerage houses, in-
surance companies and surety companies.

SECOFI was left in charge of the non-financial private sec-
tor in coordination with the main business organisations, such as
the Business Coordinating Council (CCE), the Confederation of
National Chambers of Commerce (CONCANACO), the Con-

17 INEGI, Memoria de la Comisión Nacional para la Conversión Informática Año
federation of Industrial Chambers (CONCAMIN), the Mexican Employers’ Confederation (COPARMEX), the National Agricultural Council, the Mexican Council of Businessmen, the Mexican Banking Association (ABM), the Mexican Association of Stock Market Intermediaries (AMIB), the National Chamber of the Transformation Industry (CANACINTRA) and the Chamber of Commerce of the Federal District (CANACO-DF).

In addition, the judicial and legislative branches, states and municipalities, the National Polytechnical Institute (IPN) and the National Autonomous University of Mexico (UNAM) were invited. Groups were also established by strategic areas: energy, communications, transport, health, states and municipalities, education, food supply, collection and customs.

An international line of work was also established to identify events on this topic in other countries and in global organisations, as well as to address potential cross-border issues. Finally, the main suppliers of computer equipment and services were contacted to exchange information.18

The Commission’s work was organised through regular meetings of all the participants at the level of the secretaries of state and the strategic coordinators appointed by them for each sector, who were given the immediate task of presenting a diagnosis of the problem on a sector by sector basis, with a strategy for raising awareness and identifying critical points. All of this was done with a comprehensive approach due to the high level of interdependence between them.19

In the INEGI workshops, two methodological guides were prepared to be distributed to all participants and those interested in the subject: Steps for Conversion, helping to identify and correct the problem in all the processes of an organisation, and the Guide for Developing a Contingency Plan, presenting alternative working methods to continue operations in the event of an interruption in computer equipment.

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18 Ibid., p. 20.
19 Ibid., pp. 20-21.
In addition, to address the use of microprocessors for the control and regulation of the operation of all types of devices, the *Computer Problem Care Guide* was published.

At the same time, a wide dissemination of the possible contingency and the strategy to solve it was initiated in both printed and electronic media. A Commission website was set up, in addition to the biweekly newsletter Y2K. Strategic companies from the private sector were contacted directly, including TELMEX, Nestlé, Bimbo, Alfa, Vitro, General Motors, Modelo, Mabe, Iusacell, etc., as well as the commercial chains belonging to the National Association of Supermarkets and Department Stores (ANTAD).

SECOFI made a telephone line 01 800 (free of charge) available to small and medium-sized enterprises, and INEGI conducted four surveys across 18,000 establishments each between July 1998 and September 1999 in order to learn more about the state of computing and the level of preparation for the change of millennium. In addition, the National Survey on IT Change in Private Hospital Services was carried out.

From its inception in June 1998 to the days leading up to the transition to the year 2000, the Commission’s plenary session met every two weeks for a total of 39 sessions.

In the international field, the United States of America (USA) developed intense activities on Y2K. In October 1998, President Clinton signed the Year 2000 Information and Readiness Act. The European Commission worked on cross-border cooperation between its members, judging it to be one of its most vulnerable areas. In mid-December 1998 the United Nations convened the First International Y2K Conference and established the International Y2K Cooperation Center in Washington, D.C.

Numerous international bodies were also involved. The World Bank made funds available to Central America and the Caribbean. Mexico took the lead in the region and organised seven coordination meetings with experts in the field, four of which were financed in part by World Bank resources.
Finally, worldwide and in Mexico, the date of change arrived without serious incident. National Geographic reported that problems were only detected in one nuclear power plant in Ishikawa, Japan, and the Encyclopaedia Britannica mentions failures and shutdowns in 15 nuclear reactors without specifying the duration of the shutdowns. In no case was there a catastrophe, let alone a major accident.

The global external results of this major effort, however, led to an anticlimactic reaction: was this the result of timely country intervention or was it, above all, overspending to prevent something that was not so serious? Various sources estimated spending $300-600 billion on the programme; the US printed $50 billion on prevention, in case cash was urgently needed in the economy.

The figures are impossible to calculate and, even if they could be corroborated, it would not be possible to separate what was due to Y2K and what was due to the modernisation of equipment that would have had to be completed anyway or which, although brought forward, was due to be completed in the near future.

The fact is that - independently of entering into a counterfactual analysis that would be, by its nature, impossible to assess - the international community of countries and organisations developed a great effort of coordination and actions that were decisive in avoiding a serious disaster scenario. In addition to this, a significant renovation and modernisation of equipment was carried out worldwide, which is part of the history of world computer development. Perhaps one victim of the anti-climactic environment was the Y2K manager in the USA, John Koskinen, who was promoted as a candidate for the Nobel Peace Prize, based on his international work for the Y2K. Although INEGI signed the letter of support, this candidacy was not successful. We will never know the reasons of the Nobel Peace Prize Committee in Oslo, but at least we were included in their promotion.

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CHAPTER 7.

INEGI

AT THE TURN
OF THE MILLENNIUM

As we have seen, the 20th century ends for INEGI in the midst of many activities, with the first of a new census round culminating in a new century, the 1999 Economic Censuses, and even with an activity outside its scope, the Y2K.

“...THE UPS AND
DOWNS OF OBTAINING
AUTONOMY WILL TAKE
THIS TOPIC TO THE
LEGISLATIVE POWER...”

The Twelfth General Population and Housing Census opens the first decade of the 2000’s, a period in which the institution will maintain its dynamics of information production, while the ups and downs of obtaining autonomy will take this topic to the Legislative Power without really prospering until 2008. This process, which marks a transcendental transformation for the Institute, will be discussed in detail in the following chapter.

7.1. The Census Round that closes a century and begins another

This new census round originally included the 1999 Economic Censuses, the Twelfth General Population and Housing Census of 2000 and the Agricultural, Livestock and Forestry Census of 2001, but the latter, due to budgetary restrictions, could not be fully conducted, so only the Ejido Land Census was carried out.
Carlos Jarque was appointed Minister of Social Development in August 1999, so he was only responsible for the first census of this round. His successor was Antonio Puig, who led the second of these censuses. In April 2001, Gilberto Calvillo was appointed president of INEGI, who was responsible for the carrying out of the Ejido Land Census.

The Economic Censuses of 1999 included the Fifteenth Industrial, the Twelfth Commercial, the Twelfth Services, the Thirteenth Transport and the First Water Collection, Treatment and Supply censuses. Previously, in 1998, a comprehensive list of establishments in urban areas was elaborated which would later serve as input for the Population and Housing Census. For the first time, the new scheme of the North American Industrial Classification System (NAICS) was adopted, which made the economic activities of the three trading partners comparable: Mexico, Canada and the United States of America (USA). Also, for the first time, the characteristics of drinking water, sewerage and sanitation operating agencies were known, and it was also detected that the national water supply was provided by a total of 2,356 agencies; likewise, a user consultation programme was initiated, in which proposals were collected from 140 institutions.

The Economic Censuses were conducted by total count in urban areas from February 1 to April 30, 1999 and by sample in rural areas between May and June. The operation involved 37,633 people, who registered 3,209,844 economic units, by means of 34 questionnaires differentiated by subject matter.

In July of the same year, the appropriate results were made known through both a printed document and a compact disc called Economic Censuses 1999. Complete enumeration. Timely results.

1 INEGI, 125 años de la Dirección General de Estadística, pp. 235 & 236.
2 Ibid., p. 235.
3 Secretaría de Hacienda y Crédito Público (SHCP), Cuenta pública 1999 (Mexico: SHCP, 2000).
The Twelfth General Census of Population and Housing of 2000 - as has been the case in this type of census which requires planning that began several years before it was taken - had a census trial that was carried out in April-May of 1998 in Coahuila, Nayarit and Tlaxcala; two thematic tests, one in Jalisco and Puebla in June of 1998 and another in Aguascalientes in August of the same year; and the Pilot Census, which took place in January-February of 1999 in the states of México, Hidalgo, San Luis Potosí, Sonora and Yucatán.4

In addition, coverage and bias surveys were carried out for the Pilot Census in order to assess the levels of housing, household and individual coverage, as well as a number of variables regarding ethnic and economic characteristics, disability, fertility and mortality, as well as to verify the applicability of the question on the use of the mother tongue.5

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5 Ibid., p. 61.
The period of the Census was extended to two weeks (from February 7 to 18, 2000), with the information referring to February 14 of that year. Two types of questionnaires were used, a basic one for all households and one extended to a probability sample of 2.5 million households, providing for information to be generated at the national, state and municipal levels and for each locality of 50,000 or more inhabitants.6

The basic questionnaire dealt with a similar topic to that of the 1990 Census and incorporated some new issues, such as housing assets, housing rights, disabilities, municipal migration, activity and mortality. The expanded questionnaire also included water supply, year of construction, rubbish disposal, causes of disability, use of health services, reasons for migration and school drop-out, ethnicity, labour benefits, workplace, other income and international migration.7

More than 460 thousand people hired by INEGI participated in the operation8 and the total population reported was 97.5 million people.

The Agricultural, Livestock and Forestry Census was supposed to close this round in 2001; however, as already mentioned, it was only possible to carry out the Eighth Ejido Land Census, and the agricultural and forestry part was postponed until 2007.

A decision was made to use the available resources to update the basic information on the country’s ejidos and agrarian communities, participating since 1992, for the most part, in the Programme for the Certification of Ejido Land Rights and Titling of Urban Plots (PROCEDE) and as such information on the impacts of the latter was available.

As part of the previous work, a Pilot General Census that had been carried out in 1999 was used. The Ejido Land Census was

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6 Ibid., p. 17. // INEGI, 125 años de la Dirección General de Estadística, p. 236.
7 INEGI, 125 años de la Dirección General de Estadística, p. 236.
8 INEGI, Memoria. XII Censo General de Población y Vivienda 2000, pp. 87 & 88.
carried out from November 26 to December 19, 2001 with a staff of 472 people at national level and the results were published in December 2003.\(^9\)

### 7.2. Activities in the first decade of the new century

In 2000, the first National Youth Survey was carried out with the Mexican Youth Institute, and INEGI launched the Informal Sector Satellite Account, as well as a new monthly economic indicator, the Global Indicator of Economic Activity (IGAE).\(^{10}\) Conducting the National Survey on Consumer Confidence (ENCO) on an ongoing basis was also agreed upon.

At this time, INEGI began a strategic alliance with UN Women and the National Women’s Commission (CONMUJER), the predecessor of the National Women’s Institute (INMUJERES), to open up a space for reflection on the development of statistics from a gender perspective, a body which has met every year since then on the INEGI premises.

The Survey on Domestic Violence, conducted in 1999 in the metropolitan area of Mexico City, was also published. It is the precursor to the National Survey on the Dynamics of Household Relationships (ENDIREH), which will begin in 2003 and will be conducted again in 2006, 2011 and 2016.

Along the same vein, the System of Indicators for Monitoring the Situation of Women in Mexico (SISESIM) was launched, providing quantitative and qualitative gender information and was founded with INMUJERES in 2001.\(^{11}\)

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9 Ibid., p. 237.
11 INEGI, 125 años de la Dirección General de Estadística, p. 239.
In addition, in Geography, the Digital topographic map is to be produced at a scale of 1:1,000,000 based on the generalisation of digital topographic cartography at a scale of 1:250,000.

In 2001 the Integrated Geographic and Statistical Information System (SIIGE) was published, soon evolving into the Geospatially Integrated Reference Information System (IRIS V1.0).\textsuperscript{12} In the same year, the new Composite Indicator System was created: Coincident and Leading (SICCA), which incorporates data from various national markets and allows for the anticipation of their probable economic evolution.\textsuperscript{13}

In 2002 the 120th anniversary of the General Directorate of Statistics (DGE) was commemorated, so a series of events were organised including the inauguration on March 27 of the Emilio Alanís Patiño Library, named after the distinguished director general of statistics from 1938 to 1941, which is located in the INEGI headquarters in Aguascalientes. The ceremony was enhanced by the presence of his widow, Sofía Rebolledo, the head of the Ministry of Finance and Public Credit (SHCP), Francisco Gil Díaz, and the governor of Aguascalientes, Felipe González, as well as the deputy minister of Urban Development and Land Management of the Ministry of Social Development (SEDESOL), Rodolfo Tuirán.

A well-deserved tribute to one of the historical directors of the institution, which followed the previous recognition in life that INEGI had given him, in the 90’s, naming a street in the Primo Verdad neighbourhood of the city of Aguascalientes after him. This event also recognised the engineer Juan Puig de la Parra, creator of the Commission of Studies of the National Territory and Planning (CETENAP) in 1968, a direct antecedent of the General Direction of Geography of INEGI.

Conferences and round tables were part of the programme of celebrations during the year, culminating in the Sixth Nation-

\textsuperscript{13} INEGI, \textit{Cronología de la estadística en México (1521-2003)}, p. 75.
al Meeting of Statistics which took place in Aguascalientes from August 20 to 22 and was inaugurated by the President of the Republic, Vicente Fox Quesada, accompanied by the Governor, Felipe González, as well as various State ministers.

An issue not on the agenda, but nonetheless present at the various roundtables, was that of the autonomy of INEGI which, in those days, was already on the legislative path, as we shall see in Chapter 8.

Among the many programmes carried out in 2002, the National Survey on the Availability and Use of Information Technology in Households was conducted for the first time. The National Surveys on Micro-Businesses, Time Use and Addictions were also carried out. That year, the Census Information Consultation System (SCINCE) 2000, derived from the Twelfth General Census of Population and Housing of 2000, was released on 32 compact discs with indicators at the state, municipal and groups of blocks (basic geostatistical area) levels for localities with more than 2,500 inhabitants.14

In late November 2002, the International Workshop on Gender-Sensitive Statistics was held in Aguascalientes in coordination with the United Nations Development Fund for Women (UNIFEM).

In 2003 the first version of the Digital Map of Mexico was developed and the Mexican Elevation Continuum V.1.0 was published.15

That same year, the creation of the consultative committees on statistics and geographical information was promoted as a measure to articulate the coordination of the National Statistical System by bringing together the generators and users of the information. Two consultative committees (Statistics and Geography), 18 sectorial, 32 regional and four special committees were set up.

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14 INEGI, 125 años de la Dirección General de Estadística, p. 253.
This is the background to the structure of the executive and specialised technical committees that will be created with the *Law on the National System of Statistical and Geographical Information (LSNIEG)* in 2008 and which are the main coordination body of the SNIEG at present.

Likewise, as a result of the modification to the *Internal Regulations of the SHCP* published in the *Official Gazette of the Federation (DOF)* on June 17, 2003, INEGI will have a Board of Directors presided over by the Minister of the SHCP, the Governor of the Bank of Mexico, the Deputy Minister of Expenditure, the Senior Officer and the Fiscal Prosecutor of the SHCP, the President of the Institute, the Deputy Minister for Small and Medium Enterprises of the Ministry of Economy and the directors of the Institute of Geography of the National Autonomous University of Mexico (UNAM) and El Colegio de México.16

The constitution of this Governing Board reflected the contradictions inherent in the legal status of INEGI as a decentralised body of a Ministry in which, despite the technical autonomy, the authorities of SHCP and other agencies of the Federal Executive branch decided to intervene in the internal technical management of the institution through the various powers given to this Board. These included approving the Institute’s work plan; knowing and giving their opinion on the development of the National Statistical and Geographic Information Systems; defining the information of national interest to be produced by INEGI; and, finally, resolving other issues that any of its members submitted for its consideration, all of which are enshrined in Article 100-D (sections I, IV, VIII, XII) of the *SHCP’s Internal Regulations*.17 Added to this was the integration of the Board by an overwhelming majority of Federal Executive officials, in which INEGI had only one position.

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16 INEGI, *125 años de la Dirección General de Estadística*, p. 258.
The creation of this Governing Board took place in the midst of the discussion of initiatives in the Legislative Branch to give INEGI constitutional autonomy from the Federal Executive branch, a clear sign of the latter’s resistance to seeing its scope of control over statistical and geographic information diminished. Still, the institution was far from the aspiration of autonomy emerging in the legislative body, but gradually nearing closer.

In 2003 an agreement was signed with the Bank of Mexico to carry out ENCO. In addition, there was an increase in the number of national surveys on emerging social issues that were conducted with different institutions, such as Education, Training and Employment (ENECE); Health and Ageing in Mexico (ENASEM); Perception of Public Security (ENASEP); Notes and Coins (ENBIMO); and Employment and Social Security (ENESS); Drug Use; Time Use; and Job Placement and Tenure. In addition, the methodology was improved and the sample of the National Household Income and Expenditure Survey (ENIGH) was expanded, obtaining the ISO 9001:2000 certification.

In administrative records, the first version of the Automated Coding of the Basic Cause of Death and the Automated Source Information Diagnosis were generated. The database of births by year of occurrence 1985-2003 was integrated and working mechanisms were established with the National Population Registry (RENAPO), unifying the use and automation of the records they produce in the country’s civil registries.

With the modification of June 2003 of the Internal Regulations of the SHCP, the Directorate of Economic Sector Censuses, responsible for the Economic Censuses, and the areas responsible for the Agricultural Census and the surveys in establishments were separated from the DGE and transferred to the Directorate General of National Accounts and Economic Statistics, thus grouping together basic and derived economic statistics, leaving the socio-demographic area to the DGE.

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18 INEGI, 125 años de la Dirección General de Estadística, p. 262.
19 Ibid., p. 263.
At the end of 2003 (December), the first National Programme for the Development of Statistics and Geographical Information was drawn up as a guiding instrument for the operation of the information-producing units of the Federal Public Administration (APF).

The following year the 2004 Economic Censuses were carried out, comprised of the Sixteenth Industrial Census, Thirteenth Commercial Census, Thirteenth Services Census, Fourteenth Transport and Communications Census, Fifth Fishing Census and Second Water Collection, Treatment and Supply Census. These censuses will be directly adjusted to the NAICS, which in its 2002 version covered 20 sectors, 95 subsectors, 309 branches, 631 sub-branches and 1,051 classes of activity. The census operation was structured around these 20 sectors and covered 959 of the 1,051 activity classes.

The fieldwork operations involved 48,331 people who captured the information through 28 paper-based questionnaires (with topics common to all sectors and specific sections for each) and, for the first time, complementary mobile computing equipment was used in a census. Previously, from June 2 to November 28, 2003, the verification and updating of large establishments and companies was conducted. The operation was carried out from March 1 to June 30, 2004 by means of an exhaustive investigation to identify all economic activity in each of the country’s 6,673 urban localities, industrial parks and corridors, and in all the municipal capitals. At the same time, the sampling was applied in rural localities with less than 2,500 inhabitants.

The final results were released on July 14, 2005, 12 months after the end of the census operations, which was a record at that time for the Economic Censuses. A total of 4,210,108 economic units were found to be active in 2004.²⁰

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In 2004 the *Mexican Gravimetric Geoid (GGM04)* was published on INEGI’s website and the surveying of topographic information with Lidar technology equipment begun. In coordination with the Ministries of the Navy and of Agriculture, Livestock, Rural Development, Fisheries and Food, in that year the Institute also began to participate in an operation to obtain satellite images through ground stations with the Mexican *SPOT* Image Receiving Station (ERMEXS).²¹

In 2005, the National Survey of Occupation and Employment (ENOE) will replace the National Urban Employment Survey (ENEU) which dated from 1983. The ENOE incorporates many improvements and recommendations of the Organisation for Economic Cooperation and Development (OECD) that allow it to more accurately measure the economically active and unemployed populations. It is a continuous survey that collects information every day of the year. Its current sample is 126,000 households in both urban and rural areas of the country and reports its data on a quarterly basis. One third of the sample - that is, the information obtained each month - presents preliminary representative data at the national level, while the final quarterly data is broken down by four sizes of localities and by each of the 32 states.²²

Although planning for the Second Population and Housing Count of 2005 had begun two years earlier with a trial in Colima in 2003 and a field test in Zacatecas in September 2004, the actual carrying out had to be cancelled November 2004, due to budgetary restrictions that were foreseen for the following year. However, in March 2005 a budget was authorised, although in smaller amounts than those required by the Institute. In addition to the delays in organisation caused by the uncertainty of the budget, this led to the decision to apply a single questionnaire - albeit one with a larger number of questions - and not to carry out an accompanying survey as on the previous occasion. The enumeration was direct from the entire population at their place of habitual residence.

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²² INEGI, *125 años de la Dirección General de Estadística*, p. 265.
The Count took place from October 4 to 29, 2005 with just over 100,000 people visiting all the households in the country. They were asked about kinship, sex, age, health services, place of residence five years ago, indigenous speech, literacy, school attendance, educational level and number of children born alive. In terms of households, their number and type, and in terms of dwellings, their type and class, material in floors, number of bedrooms and rooms, basic services, health services, household appliances and whether agricultural or forestry activities were carried out.

For the operation, computer equipment and digital connection was provided to the 54 coordinating offices in the country, 246 zone coordinations and 841 municipal offices.

The preliminary results were presented on February 13, 2006 and the final results on March 24, 2006. The population was 103,263,388 inhabitants and 24,719,029 houses were inhabited.23

Users were offered the option of consulting the final results on the Internet by means of so-called dynamic cubes, a technology that had begun to be used at INEGI since 2002 and that had been perfected over the years. These consist of a multidimensional online database that allows users to access the information without requiring a large memory capacity, since the same system stores the data,24 it also offers a set of variables and indicators so that the user can generate their own tables.

In academic matters, since 2005 the Master of Science in Official Statistics has been organised in collaboration with the Mathematics Research Centre (CIMAT) of the National Council for Science and Technology (CONACYT) located in Guanajuato, with a curriculum of six four-month periods and three blocks of subjects: models, sampling and statistical computation. The studies took place at the INEGI facilities in Aguascalientes. The first generation, made up of 23 workers, graduated in December 2006.

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24 INEGI, 125 años de la Dirección General de Estadística, p. 268.
In 2005, the National Interactive Atlas of Mexico (ANIM) was published on the Institute’s website and in 2006, the Mexican Gravimetric Geoid (GGM06) and the orthophoto viewer were both published on the same website. This year the Banobras-INEGI agreement was signed to promote the modernisation of municipal cadastres. In 2007, the Station for the Reception of Satellite Information (ERIS) was established in Chetumal, Quintana Roo, in coordination with the German government and the coordinates of the Mexico-US border monuments were updated.25

In 2007, the Agricultural, Livestock and Forestry Census was carried out (with a six-year lag since, as mentioned, it could not be carried out in 2001 due to budget restrictions). The Ninth Ejido Land Census, whose predecessor (the Eighth) was the only census of the countryside that was carried out in 2001, was conducted at the same time. The information refers to the cycles of autumn-winter 2006-2007 and spring-summer 2007.

In preparation for these censuses, a pilot test was conducted in 10 regions of the country in 2006. The Agricultural, Livestock and Forestry Census was carried out in two stages, a first one of enumeration of agricultural lands from June 11 to July 6, 2007 through which the plots were identified on cartographic material, as well as the names and addresses of the producers, and concurrently the Ejido Land Census was also conducted. The second stage consisted of interviews with producers, gathering information from October 1 to November 30, 2007.

A total of 19,400 people participated in the enumeration, which increased to 21,400 in the undertaking. More than 17,000 mobile PDA (Personal Digital Assistant) devices were used for the first time in these censuses, and an extensive dissemination campaign was carried out before and during the surveys.26

The objective of the Agricultural, Livestock and Forestry Census was to capture information on the sector and the economic and technological characteristics of the production units, as well as to generate the National Directory of Producers associated with the Land Inventory that would provide the reference framework for the development of future surveys.

The Ejido Land Census obtained information on the structural aspects of the more than 30,000 ejidos and agricultural communities nationwide.

In April 2008, the 41 statistical tables with the preliminary results of the Ejido Land Census at the state level were published, and in March 2009, those corresponding to the Agricultural, Livestock and Forestry Census.

6.4 million production units were captured with an area of 112 million 743 thousand hectares.

By land regime, 62% corresponded to private property; 32.9% to ejido; 3.5% to communal; and the rest to districts and public property; while for land rights, 94.4% corresponded to ownership and 2.4% to rental agreements, reflecting the major agrarian reform undertaken in 1992 through PROCEDE.

7.3. International activities

In the 21st century the Institute continues with its intense international agenda. The International Meeting on Gender Statistics, organised at INEGI in coordination with UN Women and INMUJERES in 2000, is the start of an annual tradition that is now in its 19th year and has become a reference point on the subject of

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29 Ibid., p. 17.
gender statistics in Latin America and the Caribbean. It will lead in 2006 to the creation of the Working Group on Gender Statistics within the framework of the Statistical Conference of the Americas (SCA) of the Economic Commission for Latin America and the Caribbean (ECLAC) when it was chaired by Gilberto Calvillo (2005-2007), with Mexico remaining as the coordinator of this group.

Numerous international courses, as well as workshops and other meetings, are organised at INEGI. In 2001, together with the European Centre for Statistical Training in Developing Countries (CESD-Madrid), the Course on National Accounts: Perspective of the New System of National Accounts was held, with the participation of 30 officials from national statistical offices (NSOs) and central banks in the region, in addition to the Seminar on the Organisation and Functioning of NSOs, attended by 26 officials from the region.

Also this year, INEGI is hosting the CVI Macroeconomic Quarterly Meeting of the Econometric Research Centre and Wharton Econometric Forecasting Associates (CIEMEX-WEFA) in Aguascalientes, organised in collaboration with the Sixty-fifth Automotive Quarterly Meeting, with the assistance of 70 specialists to analyse Mexico’s economic prospects, the Mexico-Canada economic relationship and the evaluation of commercial relations between terminal plants and vehicle distributors in order to achieve greater competitiveness.

In 2002, together with the Mexican Commission for Cooperation with Central America of the Ministry of Foreign Affairs (SRE), five international workshops and courses were organised, with the participation of 35 officials from the region on topics such as digital processing of satellite images with cartographic applications; design, implementation and analysis of household surveys; methodological criteria for measuring poverty; and gender statistics.

In 2003 there were six international events with 150 participants on transport statistics, central business directories and, with the OECD and Eurostat, on purchasing power parities. In
2004, with the Mexican Commission for Cooperation with Central America (CMCC), two workshops were organised on digital mapping, geographical information systems (GIS) and spatial management of statistical information, which were attended by 25 people.

In 2005, INEGI held five international courses in Aguascalientes and Puebla on the design, implementation and analysis of surveys of living conditions in Latin America, geospatial management of statistical information and GIS.

In 2006, together with the CMCC, two workshops were organised for 50 Central American officials on geospatial management of statistical information and seasonal adjustment of time series; this project will be repeated in 2007 with the topics of survey sample design and GIS.  

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INEGI. Why INEGI? The saga of a Mexican institution in search of the truth. 2020.
INEGI. Why INEGI? The saga of a Mexican institution in search of the truth. 2020.
Previous page: An INEGI interviewer during the undertaking of the Economic Census 2019.
8.1. First steps

On February 21, 1992, the Ministry of Programming and Budget (SPP) disappeared from the Mexican Federal Public Administration (APF) and INEGI became part of the Ministry of Finance and Public Credit (SHCP), under the command at that time of Pedro Aspe, former president and founder of INEGI.

One of the first topics discussed by Pedro Aspe and Carlos Jarque, the president of INEGI at the time, was the future legal status of the Institute. In the context is the project of giving autonomous status to the Bank of Mexico (Banxico) promoted by the Minister of Finance as a measure to modernise the economy and public administration, which would allow the creation of an independent institution with the mission of overseeing inflation in the country, a measure adopted by several countries, such as Germany in 1957, Great Britain in 1997 and the European Union when it established the European Central Bank in 1998.

As a first step, a decision was taken to integrate a working group formed by Antonio Sánchez Gochicoa (ex-INEGI and, at that time, chief administrative officer of the SHCP) and by INEGI, this author (administrative coordinator) and the legal director of the

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1 Secretaría de Gobernación, “Decreto que deroga, reordena y reforma diversas disposiciones de la Ley Orgánica de la Administración Pública Federal”, Diario Oficial de la Federación, February 21, 1992, providing for the merger of the Ministries of Programming and Budget and Finance and Public Credit.
2 Federal Law Gazette 1 (Bundesgesetzblatt 1), Bundesbank Act, Germany, final reform: July 4, 2013. Translation by Deutsche Bundesbank of the original text in German.
time, Jorge Ventura who, after multiple administrative placements, has now returned to that responsibility under a different title and level.

The mission of this small group was to review the alternatives that could be considered, which included continuing with the model of deconcentration, verifying the feasibility of decentralisation or another figure with variants of it and an idea that, for the time, still seemed radical, surely far away, that of autonomy in relation to the three branches of government, in particular the Executive.

The old discussion with Malinvaud in Paris at the end of 1982 had not been forgotten and, although the review group went through the formalities of the legal and technical analysis of the other alternatives, it was clear that the predominating idea from the beginning, as the best option for the future was autonomy, perhaps at that time the most difficult to achieve politically.

Once this path was decided, it was agreed that, with the greatest possible secrecy, a small team within INEGI would prepare the first draft of what could be the future law governing the institution. This discretion was prudently chosen because of the experience of what it means to move innovative projects in any public administration, which always causes resistance. We did not know at that time the vicissitudes - and the length of time - that it would take, but the way in which they occurred seemed to justify the wisdom of exercising precaution, as we will see later on.

The first drafts and projects were prepared by INEGI, with Claudia Rodríguez joining the original team and with the direct participation of the then President of the Institute in the revision of each version that was developed.

Since the adoption of the Fundamental Principles of Official Statistics by the United Nations Statistical Commission (UNSC) in 1994, they have been included in the articles of the draft laws that were handled from that moment onwards, which contemplated the addition of a third paragraph to Article 26 of the Constitution to create an autonomous body called the National Institute of
"... THE ADDITION OF A THIRD PARAGRAPH TO ARTICLE 26 OF THE CONSTITUTION TO CREATE AN AUTONOMOUS BODY..."

Statistics, Geography and Informatics (the word “Informatics” was not yet removed from the name). It was also pointed out that the Federal Expenditure Budget would allocate financial resources to fulfil its obligations and that the elaboration of INEGI’s budget would be completed in a similar way to the one established for the Judicial and Legislative powers in the *Law on the Budget, Accounting and Public Expenditure* (financial autonomy). However, this proposal was to be strongly opposed, thus disappearing from the drafting of articles over time.

The projects also included the proposal of a *Law on Statistical and Geographical Information* and a Governing Board consisting of a President and four Vice-Presidents. The Integrated Professionalisation System for staff was also established.

Coinciding with this period, and in line with the search for an autonomous organisation with a high degree of technical specialisation - in addition to the particular situation of the transfer of a large number of workers to Aguascalientes - the institution is promoting a career civil service project for its staff with the intention of supporting a future autonomous institute producing high quality work. Outside the Career Diplomatic Service of the Ministry of Foreign Affairs (SRE) and a few other exceptions, such as Banxico and the Federal Electoral Institute (IFE, now the National Electoral Institute), this was not a programme that formed part of the APF’s personnel policy.

Both projects will meet with a lot of resistance in the APF. At some point, it seems that in the SHCP itself, outside of its head and a small circle, the majority of public servants are opposed to these projects - not to mention the Ministry of the General Comptroller of the Federation, later the Ministry of the General Comptroller and Administrative Development - and pretexts are found not to carry them out.
In the case of the civil service, a strong counter-argument was the necessity of distinguishing administrative employees from technicians, as the former were in a situation where their services could be demanded in the local market, ignoring the factors of relocation forced by circumstances, but also how local state administrations operate that are not distinguished by hiring personnel via open competitions but where pre-existing personal relationships prevail.

Another negative factor was time: the six-year presidential term was coming to an end.

In the end, it was not possible to carry out the ideal legal transition that would have been needed to establish a civil service system, so the seeking of an agreement\(^5\) with the Ministry of Finance became the chosen upon path that would allow staff to be recruited under a set of rules on recruitment through selection competitions advertised among the population, selection committees - with the participation of senior managers - permanent evaluation and a tabulator with promotions within the post itself to improve people’s income without the need to change levels within the administrative hierarchy.

This was not the ideal civil service system, but it laid the foundations for the future professionalisation system that would be contemplated in the law providing for INEGI’s autonomous status in 2008. It would allow for the creation of professional experience in its operation at practically all levels of the institution, with the exception of labour relations with the union (which continued to be governed by current labour regulations). In fact, when the APF began its own process to create a civil service system in 2003-2006, it would be one of the most studied.\(^6\) It will provide, to the autonomous INEGI, a cultural reference and an opportunity to learn about its limitations and results.

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\(^5\) Secretaría de Hacienda y Crédito Público, “Acuerdo por el que se establecen las reglas del Sistema Integral de Profesionalización del Instituto Nacional de Estadística, Geografía e Informática”, *Diario Oficial de la Federación*, November 11, 1994.

\(^6\) By the beginning of the 21st century, the issue of professionalisation or public service had acquired fashionable status in the APF and, from being an ignored or even opposed issue as had happened with the original INEGI proposal, various areas and officials were now disputing the possible paternity of the system.
As far as autonomy is concerned, the time restrictions and the resistance found in the APF to a globally unique project prevented its implementation by the already outgoing administration. However, in light of Banxico’s new autonomous status, future options for INEGI and other organisations opened up with characteristics entitling autonomy. The Bank became autonomous on April 1, 1994 with the priority objective of ensuring the stability of the purchasing power of the currency which, in turn, should support the national economy, promoting the healthy development of the financial system and the functioning of the payment systems.7

This is how President Salinas de Gortari’s term ends. Autonomy has been proposed, but it is facing the vicissitudes of any pending issue in a change of administration. However, it remains firmly on the agenda of INEGI, whose president, Carlos Jarque, is ratified in office upon the arrival of the new government, which faces a severe economic crisis just a few days after assuming power, which has repercussions for INEGI -as we have already discussed- and which, among other situations, would lead to its participation in the National Development Plan 1995-2000 (see sections 5.3 and 6.2).

This is the first official document in which INEGI’s independence appears as a State policy proposal. It allowed, at that time, to keep the issue formally on the national agenda, which would serve to continue presenting the project to the SHCP on which the Institute hierarchically depended.

These authorities are not going to show much enthusiasm for an issue that was alien to them not only because it did not come from their own initiative, but also because it implied a loss of control over an area that depended on them administratively and politically. However, the issue remains in force and, periodically, INEGI would promote proposals for the possible law that would govern its autonomy.

8.2. INEGI’s independence becomes interesting for the Legislative Power

Meanwhile, the country’s process of democratisation continued to advance. With each election there were more opposition deputies and in fact in 1997 the official party, although still the largest in the Chamber of Deputies, failed to achieve an absolute majority for the first time. An opposition representative - from the Democratic Revolution Party (PRD) - won the election for the Federal District government and another opposition candidate - in this case the National Action Party (PAN) - is already set to win the 2000 presidential elections.

A subject with its own merits, both from the point of view of the technical production of information and of its contribution to a more democratic system that would reduce the authoritarian scope of government (its distinctive mark for many years), could not fail to attract the interest of politicians of all affiliations, including those from the government who would not have guaranteed their control of it in the future, given the possibility of electoral changes. It was better for everyone that the information be protected from any interference.

So, we will see that those who were sceptical (to put it mildly) of promoting autonomy when they were in power, would suddenly show a strong enthusiasm for promoting it when they found themselves in opposition. This phenomenon also occurred in the opposite direction, but in the end a consensus was reached which, after many uncertainties, would lead to the autonomy of INEGI.

In this way, at the same time that the eventual autonomy of the Institute is going to contribute to the general process of democratisation that is taking place across the country, it is also a beneficiary of it, in the sense that deputies and senators from the various political forces in the country are beginning to consider it positive that the information produced by INEGI is protected from the ups and downs and changes of government, where no one is guaranteed access or retention of power.
On September 25, 2001, the parliamentary group of the PRD presented an initiative in the Senate to reform Article 26 of the Constitution, granting autonomy to INEGI.

This was followed by two similar initiatives presented to the Chamber of Deputies in 2002: one by the PRD parliamentary group on February 13 and the other by PAN on October 22. On July 2, 2003, at a meeting of the Standing Committee of the Congress of the Union, a senator and two deputies from the parliamentary group of the Institutional Revolutionary Party (PRI) also added another initiative.

The Institute, for its part, contributes to the process. For this purpose, as of 2004, it has hired the advice of a legal team from the Autonomous Technological Institute of Mexico (ITAM) in which Roberto del Cueto and Viviana Garza, among others, would participate. They were to follow up on the process of approving the constitutional changes and the creation of the Law on the National System of Statistical and Geographical Information (LSNIEG).

There was agreement, as can be observed, among the various political forces in the Legislative Power to promote an autonomous statute for the Institute. However, the complications inherent in a legislative process and the reticence of various actors were going to prevent it from advancing at the desired pace for a project that, at least apparently, had finally reached a consensus.

On December 12, 2003, the Constitutional Points, Population and Development, and Legislative Studies Committees of the Senate gave a favourable opinion on the initiatives presented by the various senators for the constitutional autonomy of INEGI. On the following December 15, the Plenary of the Chamber of Senators approved by 99 votes to zero the respective draft decree with the support of all the political forces represented in the Senate. On the same day, it was sent to the Chamber of Deputies which, on December 18, sends it to its Constitutional Points and Finance and Public Credit Committees. The first of these establishes a specific sub-committee for analysis on January 27, 2004.
However, the opinion of the committees responsible for reviewing these initiatives wouldn’t be submitted to the plenary session until October 4, 2005, being adopted with 300 votes in favour, 76 against and four abstentions. The bill was returned to the Senate with some amendments that are reviewed by the committees that initially dealt with the issue in the Senate; in its new opinion dated November 22, it accepts the changes proposed by the Chamber of Deputies. After the second reading of the opinion on November 24, 2005, it was adopted by the Senate with 77 votes in favour and none against. As these are constitutional changes, they are passed on to the states’ legislatures.

Once the majority of the states’ legislatures approved the changes, the Chamber of Senators declared the reforms on March 16, 2006, published in the *Official Gazette of the Federation (DOF)* on April 7, 2006. The final wording of the reform is:


Article One: Article 26 of the Political Constitution of the United Mexican States is amended as follows:

Article 26.

A. [...] 

B. The State shall have a National System of Statistical and Geographical Information whose data shall be considered official. For the Federation, states, Federal District and municipalities, the data contained in the System shall be mandatory under the terms established by law.

The responsibility for regulating and coordinating this system will be the responsibility of a body with technical and
managerial autonomy, legal personality and its own assets, with the necessary powers to regulate the collection, processing and publication of the information generated and to provide for its observance.

The body shall have a Governing Board composed of five members, one of whom shall act as President of the Board and of the body itself; they shall be appointed by the President of the Republic with the approval of the Senate or, in their absence, by the Standing Committee of the Congress of the Union.

The law shall establish the bases for the organisation and operation of the National System of Statistical and Geographical Information, in accordance with the principles of accessibility to information, transparency, objectivity and independence; the requirements to be met by the members of the Governing Board, and the duration and staggering of their term of office.

Members of the Governing Board may only be removed for serious reasons and may not hold any other employment, office or commission, except for unpaid work in educational, scientific, cultural or charitable institutions; and shall be subject to the provisions of Title Four of this Constitution.

Article two.- Section XXIX-D of Article 73 [referred to the faculties of the Congress] of the Political Constitution of the United Mexican States is amended as follows:

Article 73. ...

I to XXIX-C. ...

XXIX-D. To issue laws on national planning of economic and social development, as well as on statistical and geographical information of national interest;

[...]”

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Secretaría de Gobernación, “Decreto por el que se declaran reformados los artículos 26 y 73 fracción XXIX-D de la Constitución Política de los Estados Unidos Mexicanos”, Diario Oficial de la Federación, April 7, 2006.
The sixth transitional article states that the *LSNIEG* should be issued within 180 calendar days after the entry into force of the decree. However, almost two years would have elapsed before the publication of the law (April 16, 2008).

On March 30, 2006, an initiative was presented in the Senate to create the *LSNIEG* as a regulatory law for Article 26 B of the *Constitution* by senators from the parliamentary groups of the PRI, PAN, PRD and the Green Ecologist Party of Mexico (PVEM), each taking turns in presenting their opinion to the United Commissions on Population and Development and Legislative Studies, which presented its report on May 21, 2007.

This delay, lasting more than a year, can be attributed to the resistance of the SHCP and Banxico to losing or seeing their influence diminished.9 This led to a toning down of INEGI’s autonomy, as full budgetary autonomy was not granted as stated in Article 83, Section I, which must observe the spending ceilings established by the Federal Executive. In addition, the last paragraph of Article 33 allows for Banxico to determine the rules relating to the information it produces and requires for the conduct of monetary policy, as an exception to the rules exercised by INEGI with regard to statistical information in all other areas and in relation to all public authorities.

These two provisions which, while to some extent infringing on the autonomy of INEGI, made it possible to resolve the objections of the SHCP and Banxico and to advance with the process of approving the *LSNIEG*.

On April 24, 2007, at a second reading, the opinion was adopted with 55 votes in favour, 19 against and two abstentions. It was therefore sent to the Chamber of Deputies, where it took turns the following day to the United Commissions on Finance and Public Credit and on Governance, which issued their opinion on December 12, 2007 but which was not to be discussed until March 11, 2008.

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In this session, the two issues of the budget and the regulations reserved for Banxico are discussed. A study commissioned by the Political Coordination Board (JUCOPO) of the Chamber of Deputies to the UNAM’s Institute of Legal Research (IIJ-UNAM) pointed out that they affected the functional independence of the future autonomous INEGI; it also questioned, in the same vein, the powers of the President of the Republic to appoint the President of the Governing Board (Article 67 of the *LSNIEG*), as well as to participate in the process of removing members from the Governing Board (Article 74).

There, the PRD presented suspensive motions to revise the articles mentioned in that study, so to prevent inconsistencies with Article 26, paragraph B, of the *Constitution*; however, these were rejected.

The review continued the following day (March 12) with interesting and heated discussions between the Members present, which can be observed in the respective minutes. Finally, the vote was held on March 13, 2008, and the *LSNIEG* was approved with 285 votes in favour, 101 against and 17 abstentions.

The *LSNIEG* was published on April 16 to come into effect 90 calendar days after its publication (June 16, 2008), except for the provisions of Article 23, second paragraph of the *Law* regarding the National Directory of Economic Units, coming into effect on August 1, 2010, and Article 59, Section III, regarding the exclusive power to compile national price indices, which would enter into effect after three years, i.e. in 2011, to allow the transferal of this function from Banxico to INEGI.

This concludes the long process that was touched upon at a meeting in Paris in 1982 and which went down tortuous and varied paths within the public administration and in the legislative process of both chambers.

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Although, as in any project with human factors, the ideals sought are not fully achieved, INEGI is, worldwide, one of the most advanced examples of autonomy in a national agency producing statistical and geographic information. Its status is guaranteed by legal provisions in the Mexican Constitution and the respective regulatory law (LSNIEG) to operate independently and effectively both its own production of information and to coordinate that of other Mexican governmental agencies.13

Thus, the legal structure for the new autonomous INEGI to start operating was ready by mid-2008. However, the process of appointing the members of the Governing Board was still missing. The first members were appointed by the President of the Republic, Felipe Calderón, after approval by the Senate, in accordance with Article 67 of the LSNIEG, on October 9, 2008. The first meeting of the Governing Board was held on October 13, 2008 in the Oval Room at INEGI headquarters in Aguascalientes, with Eduardo Sojo as President and Enrique de Alba, José Antonio Mejía, Mario Palma and Mario Rodarte as Vice-Presidents.

Dargent et al., ¿A quién le importa saber? La economía política de la capacidad estadística en América Latina, p. 60. The authors agree on the worldwide uniqueness of INEGI’s autonomous framework.
In the following section we will address the main aspects of INEGI’s autonomy. Later, in Chapter 11, we will return to the subject of the vulnerabilities and risks autonomy can potentially face in the future and, with it, the fulfilment of INEGI’s mission.

8.3. The make-up of INEGI’s autonomy

The autonomy of INEGI is enshrined, as previously seen, in Section B of Article 26 of the Constitution and regulated by various provisions of the LSNIEG. The constitutional article creates a National System of Statistical and Geographical Information (SNIEG), which the LSNIEG, in Article 17, originally divided into three national information subsystems: demographic and social; economic; and geographic and environmental; to which a fourth would later be added on government, public security and the administration of justice.

The SNIEG is made up of a National Advisory Council, the executive committees of the subsystems, specialised technical committees and INEGI. The Council and the committees are made up of various State units, although the LSNIEG opens up the option of inviting all types of social and private institutions in line with the Fundamental Principles of Official Statistics to incorporate the perspective of the entire population using the information, making it relevant and responsive to the needs of society. The Advisory Council gives its opinion on INEGI programmes and proposes topics of national interest.

The executive committees of each subsystem are made up of the government units that produce and/or use the information related to the subjects of each one and are chaired by a vice-president of INEGI. The specialised technical committees created in each subsystem (although there are cases in which they are common to more than one of them) are collegial bodies where specific issues and programmes are discussed and, as their name indicates, specialised in the various subjects or areas where information is produced or required. They are headed by the most relevant State authorities on a topic or by INEGI, as the case may be.
The information produced by the SNIEG has official status and is of obligatory use for the Federation, states and municipalities, for which it must comply with a series of requirements in accordance with the Law. As seen before, INEGI publishes its information dissemination calendar in advance with the exact day on which the results of each of its programmes will be published.

The responsibility for regulating and coordinating the SNIEG lies with INEGI, which is granted technical and management autonomy, legal personality and its own assets. In this way, the Institute becomes a direct producer of information and a coordinator and regulator of a system in which all the government agents producing statistical and geographic information in the country participate. It is, at the same time, an autonomous entity of the governments that has to interact with them in order to coordinate the information they produce and use.

Autonomy implies no hierarchical relationship with the public administration. The President of INEGI and the Governing Board do not have to submit their technical decisions or the internal administration of the Institute to a higher authority, be it a minister or secretary of state as in the overwhelming majority of countries. INEGI only submits annual reports to the Federal Executive and the Congress of the Union on the results of the implementation of its work programme and the activities of the committees of the subsystems, including any relevant observations made by the external auditor charged with making an opinion on the Institute’s financial statements. Every six years, the evaluation of the SNIEG’s strategic programme is sent to both legislative branches.

Either chamber of Congress can summon the President of INEGI to report on the Institute’s policies and activities, which is subject to review by the Federal Superior Audit Office.

With the LSNIEG entering into force in 2008, it was established that the holder of the Internal Comptroller’s Office of INEGI would be appointed (or removed) by the Governing Board, to which the results of the exercising of his functions would be reported. Subsequently, on May 27, 2015, the constitutional reforms that paved
the way for the National Anti-Corruption System were published,\(^\text{14}\) by which the Chamber of Deputies was granted the power to appoint, by the vote of two thirds of its members present, the heads of the internal control bodies (ICOs) of the autonomous entities as recognised in the *Constitution*. The transitional provisions established that the incumbents in office at the time the reforms came into force would continue in their posts under the terms in which they were appointed. In compliance with the order, on April 30, 2019, the Chamber of Deputies approved by majority the appointment of Manuel Rodríguez as the head of the ICO of INEGI.

A fundamental aspect of the implementation of autonomy is the process of appointing the members of the Governing Board who, as explained, are appointed by the President of the Republic with the approval of the Chamber of Senators. The President of INEGI serves a six-year term while the Vice-Presidents serve eight-year terms. Their designation is staggered, with the President’s term beginning on January 1 of the fourth calendar year of the period corresponding to the President of the Republic and the Vice-Presidents’ terms succeeding each other every two years beginning on January 1 of the first, third and fifth years of the six-year presidential term. Members of the Board may be appointed to the office on two occasions (Article 68).

In the case of the first Governing Board in 2008, the appointments of all the members were made at the same time with the aim of constituting it in its entirety and starting the operation of the newly autonomous INEGI as indicated by the *Law*. As the times did not coincide with those established by the *LSNIEG*, on that occasion the terms of the members’ periods were reduced thus adapting them accordingly.

Article 69 of the *Law* sets out the requirements to be met by the members of the Governing Board, who must be distinguished

\(^{14}\) Secretaría de Gobernación, "Decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Constitución Política de los Estados Unidos Mexicanos, en materia de combate a la corrupción", *Diario Oficial de la Federación*, May 27, 2015.
professionals in matters related to statistics, geography or economics and have held, for at least five years, a high-level position in the public or private sector or be a renowned academic in the aforementioned disciplines.

The LSNIEG appoints the Governing Board as the highest governing body of the Institute and the Presidency as the executive body (Articles 67 and 68) and stipulates its powers in Articles 77 and 80, respectively. It assigns the Presidency responsibility for the administration, legal representation and exercise of the functions of INEGI. It reserves the approval of programmes, determination of information of national interest, approval of regulations and work programmes, as well as other functions related to the policies to be followed both in technical and administrative aspects to the Governing Board. As such, it establishes an important separation for the functioning of INEGI, as the execution of the programmes and the publication of their results are not subject to a vote of approval by the Governing Board, i.e. its technical nature is preserved, unlike the monetary policy decisions taken by central banks, they do not pass through a vote of the Governing Board, but are the result of the observance of a methodological process and are thus published.

This does not prevent the Board from interfering with the approval to carry out a programme (Article 77, Section III) beforehand but, once the programme has been approved, the responsibility for its implementation and dissemination lies with the President of INEGI and the technical teams charged with the task of carrying it out.

The President of the Republic shall appoint the head of the Institute from among the members of the Governing Board, which he shall chair. In practice, this decision has been previously announced to the Senate since the nomination of the members of the first Board and in the two subsequent ones (one by re-election).

Likewise, the Constitution states that they may only be removed for serious reasons, and the LSNIEG specifies the only causes for removal of a Board member in Article 73: basically, for possible non-compliance with their obligations or for physical or mental
incapacity, with the Governing Board deciding by majority vote on their existence, with the affected party holding no vote (Article 74). This opinion may be requested by the President of the Republic or at least two Board members and must be sent to the Federal Executive for a final decision.

Article 74, as has been observed, was one of those that met with the most objections - both in UNAM’s IIJ study and by opposition deputies - due to the potential intervention of the Executive in the life of INEGI, certainly reflecting the government’s resistance to ceding control of institutions as a source of possible risks at some point to the autonomy of the Institute.

Article 83 of the LSNIEG states that the Federation’s Expenditure Budget for the years in which the censuses, national accounts and price indices are conducted must include sufficient resources for them to be carried out, while additional statistical and geographical activities will be subject to the budgetary availability approved in the corresponding budgets. Although it does not define what sufficient resources mean nor does it assign INEGI the power to calculate them, it is clear that there is a legal requirement to cover these programmes with budgetary priority over the other programmes of INEGI or the SNIIEG itself. Article 83 states that the Institute must observe the General Economic Policy Criteria and the global ceilings established by the Federal Executive (Section I) when elaborating its budget.

In the exercise of its budget, although the provisions of the Federal Law on Budget and Tax Liability must be observed, it does not have to comply with the general provisions issued by the SHCP and the Ministry of Public Service (SFP) and may adjust its budget without requiring authorisation from the former, provided that it does not exceed the overall approved ceiling. Payments are also to be made through its own Treasury.

Likewise, the Law protects the confidentiality of the data provided for statistical purposes, which may not be used for any other purpose, may not be disclosed in any other case in a nominative
or individualised form, nor may they be used as evidence before a judicial or administrative authority, including the prosecutor, in or out of court (Articles 37 and 38).

The Law not only protects respondents with the principle of confidentiality, but also extends this protection to INEGI by specifying that it may not provide any person with any data for fiscal, judicial, administrative or any other purpose (Article 37) and that it shall not be obliged to provide any information which, by virtue of any legal provision, is confidential, classified, reserved or in any way restricted in its dissemination (Article 102).

Likewise, the Law outlines the qualities and guiding principles that must be observed in the information produced, which are in line with the Fundamental Principles of Official Statistics approved by the UN among which, for the purposes of autonomy, we can highlight those of objectivity and independence, as well as those of a more technical nature, such as quality, pertinence, veracity, opportunity, accessibility and transparency, in the end, all linked to and dependent on the effectiveness of the autonomous exercise of their functions.

These are the core aspects of INEGI’s autonomy, as we have said, one of the most complete statutes in the world with respect to giving this legal status to a statistical and geographical production agency. In the 12 years of operation of the autonomous INEGI, the institution has assumed its functions within the framework of independence conferred by Law and in that role it has been considered by Mexican society and the different governments that have acted accordingly.

However, the restrictions on autonomy described in particular with regard to the intervention of the Federal Executive in the appointment and removal of the members of the Governing Board, as well as the process of budget allocation are issues contributing to the list of risks that the institution could face in a future crisis situation, and therefore merit analysis within Chapter 11.
With the installation of the Governing Board on October 13, 2008, INEGI began to operate as an autonomous body and, at the same time, to implement a series of measures that were required to carry out, in practice, the metamorphosis that involved transitioning from one legal status to another. At the same time, the established programmes that were to be carried out or planned at that time would continue, in particular the two major census operations that were imminent: the 2009 Economic Census and the 2010 Population and Housing Census, plus the countless programmes that are part of its already traditional cycle of information generation, which include national accounts, numerous surveys and cartographic production.

At the same first session of the Governing Board, the President of INEGI informed the Vice-Presidents of the information sectors indicated in Article 79 of the Law on the National System of Statistical and Geographical Information (LSNIEG) which were assigned to them, in accordance with his powers (Article 81, LSNIEG): the Demographic and Social Information sector to José Antonio Mejía; the Economic sector to Mario Rodarte (who would be replaced by Rocío Ruiz on January 1, 2009); and the Geographic and Environmental sector to Enrique de Alba. These corresponded to the three information subsystems originally contemplated by the Law in its Article 17, and therefore the respective Vice-Presidents would chair the executive committees of each of them. The President of the Institute himself, Eduardo Sojo, would attend a
fourth instance of relations with the academic, private and international sectors because of the transversality it represented. This is not an information subsystem in itself.

The advisability of establishing an extra subsystem was also commented on, which at that time did not have a defined name, but it was considered that it should cover public security and criminal justice issues. The creation of this subsystem was being organised by Vice-President Mario Palma, who was also responsible for the supervising of the matters within the competence of the head of the Internal Comptroller’s Office.1

At the same meeting, a number of key appointments were made to begin the work of the new autonomous body. Alberto Ortega was elected as the Board’s minutes secretary and Jorge Ventura as his second stand in. In addition, both were appointed as Coordinator of Presidential Affairs and Deputy Director General of Legal Support, respectively. The appointment of Marcos González as internal comptroller was also approved, thus beginning the process of reorganising the Comptroller’s Office and a series of measures that needed to be implemented as soon as possible, such as establishing the DeclarINEGI electronic platform for the institution’s officials to make their asset declarations. Subsequently, the Internal Comptroller would be permanently invited to the sessions of the Governing Board with voice but no vote.2

Miguel Cervera, holding a long standing career at INEGI, was appointed director general of statistics and Norberto Roque, director general of links with the Presidency of the Republic. The administrative team began to work, and in addition to the normal administrative operation of the institution, was charged with implementing the changes and adjustments necessary to transition to the new legal status in the following months: Froylán Hernández as administrative coordinator, accompanied by Josué Suárez, Luis

1 INEGI, “Acta de la sesión de la Junta de Gobierno del 13 de octubre de 2008”, El INEGI como Unidad Central Coordinadora, SNIEG
2 INEGI, “Acta de la sesión de la Junta de Gobierno del 17 de octubre de 2008”, El INEGI como Unidad Central Coordinadora, SNIEG.
Zapata and Enrique González, who were in charge of the deputy general directorates of the Administration and Personnel Services, Programming and Budget, and Material Resources and General Services units, respectively. José Luis Berrospe also joined this area as Deputy Director General of Information Technology.

These appointments were completed by Ximena Altamirano, private secretary to the President, and Gualberto Garza, Deputy Director General for International Relations.

In this session, the Commission on Transparency and Access to Public Information, the Information Committee and the Transparency Unit were also created in accordance with the Federal Law on Transparency and Access to Public Government Information.

The following sessions would see intense activity in adapting the institution’s internal regulations to its new environment under the premise that autonomy did not imply exemption, but rather to adopt at least the regulations established by the Federal Public Administration (APF), improve them and adapt them to the Institute’s needs. There was an urgent need to draw up rules and manuals to regulate institutional activities and to reorganise the organisation chart with the aim of strengthening the substantive areas so that they would be in a position to carry out the new functions assigned to INEGI. At the same time, it was necessary to guarantee the continuity of the Institute’s operation and activities.

“At the second session of the Governing Board, which took place on October 17, 2008, the Rules for the Integration and Operation of the National Advisory Council were approved. Its first session was held on December 3 of the same year in the Patio de Escudos of the National History Museum at Chapultepec Castle with the presence of representatives of the legislative and judicial branches, 11 deputy ministers of state, as well as heads of unit and general..."
directors of the APF and representatives of the regional groups of states that make up the National Advisory Council (NAC).

The session of October 17 also saw the adoption of the *Rules for the Integration and Operation of the Executive Committees*, which enabled the national information subsystems to begin their activities.\(^3\)

At the third session of the Governing Board on November 10, the firm De la Paz-Costemalle DFK, S. C. was appointed as the Institute’s first external auditor, from the list of three firms provided by the Federal Superior Audit Office. At the same meeting, Elsa Resano was appointed as the head of the 2010 Population and Housing Census in the capacity of Deputy Director General of

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\(^3\) Idem.

**First meeting of the National Advisory Council (Mexico City, December 3, 2008)**

Among others, alongside Eduardo Sojo, the representatives of the Legislative Power, Carlos Lozano, and of the Judicial, Jorge Cruz, as well as the various State Ministers.
Sociodemographic Statistics, with the mission of planning and eventually implementing the respective national field operation.⁴

In the meeting of the Board on December 8, less than two months after the operational start of the autonomous INEGI, the first six operating manuals were approved, providing the necessary rules to carry out the indispensable administrative processes, for which regulation was urgent. These would cover the following areas: acquisitions, leasing and services; public works and related services; Public Works and Related Services Committee; Movable Goods Committee; removal and destination of movable goods; and authorisation of changes to the occupational structure.

These manuals reflect the institutional policy that was adopted in the sense of opening INEGI’s purchases to public tenders in the largest possible proportion and which has led to the institution being the only one in the country that follows this procedure in more than 90% of its purchases and public works.⁵

The last of these manuals provides the basis for the elaboration of the changes to the operational structure that are part of the *Rules of Procedure* being prepared at that time. The preparation of these manuals in such a short time involved the efforts of staff from all areas of INEGI in close collaboration with administrative and legal staff.

At the meeting of the Governing Board on January 19, 2009, the standard (manual) for the execution of the budget year was approved, which will be followed in subsequent sessions by the approval of the guidelines for the investment of financial resources; for the capture, recording and incorporation of surplus income; and for the austerity, improvement and modernisation of the Institute.⁶

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⁴ INEGI, “Acta de la sesión de la Junta de Gobierno del 10 de noviembre de 2008”, El INEGI como Unidad Central Coordinadora, SNIEG.
⁵ Percentage of public contracts estimated using the databases of the Mexican Institute for Competitiveness, see IMCO, “Índice de Riesgos de Corrupción: el Sistema Mexicano de Contrataciones Públicas”, Investigación Anticorrupción.
This regulation made it possible to increase the volume of payments by electronic means through INEGI’s own Treasury, which will increase from 36% in 2009 to 94% in 2013, only in those years accruing interest of nearly 200 million pesos due to the agile investment of financial resources.\(^7\) From 2013 onwards, accounting information will be published on the Institute’s website on a quarterly basis.

In the following years (2009-2014), a total of 37 organisational and 111 procedural manuals would be developed and approved.

A new National Subsystem for Government Information, Public Security and the Administration of Justice (SNIGSPIJ) will be proposed at the first session of the NAC and approved at the Governing Council meeting on December 8, which will be reviewed in section 9.3 of this chapter.\(^8\)

The \textit{LSNIEG}, which had come into force on July 16, 2008, 90 calendar days after its publication in the \textit{Official Gazette of the Federation (DOF)} on April 16, stipulated that the \textit{National Statistical Directory of Economic Units (DENUE)} should be published by August 1, 2010, with the aim of having the information from the 2009 Economic Censuses before that date. It also stipulated that the compilation of national price indices would come into effect three years after the \textit{Law} came into force (first transitional, \textit{LSNIEG}), i.e. on July 16, 2011, for which purpose it mandated that the Bank of Mexico (Banxico) and INEGI form a working group ten working days after the \textit{Law} came into force in order to plan and implement this transfer (eleventh transitional, \textit{LSNIEG}).

The institutional organisation chart is restructured in order to strengthen the substantive areas for the undertaking of the new functions assigned to INEGI. In this sense, work had been underway since October 2008 in drawing up the \textit{Internal Regulations of


\(^8\) INEGI, “Acta de la sesión de la Junta de Gobierno del 8 de diciembre de 2008”, El INEGI como Unidad Central Coordinadora, SNIEG.
INEGI, which will be approved at the Governing Board session on March 25, 2009, after being reviewed by all the responsible units of the Institute and the members of the Board, in compliance with the eighth transitory article of the Law. On the same occasion, the Modification to the organic, occupational and salary structure of INEGI was approved in accordance with the Internal Regulations.9

The Directorate General for Statistics becomes the Directorate General for Socio-demographic Statistics (DGES) and the Directorate General for National Accounts and Economic Statistics becomes the Directorate General for Economic Statistics (DGEE). The Directorate General of Geography adds Environment to its title (DGGMA); the Directorates General of the Public Information Service and Strategic Linkage are created; the Directorate General of Coordination of the National Statistical and Geographical Information System (DGCSNIEG) is maintained; the Administrative Coordination becomes the Directorate General of Administration (DGA); and the Directorate General of Innovation and Information Technology becomes the Deputy Directorate General of Information Technology, attached to the DGA.

Other new Deputy Directorates General that are being created are Government Information, Public Security and Justice, which is attached to the DGES; Price Indices, to the DGEE; and Natural Resources and the Environment, to the DGGMA.

The DGEE assumes responsibility for coordination by INEGI in the working group with Banxico for the transfer of national price indices. This Directorate General is responsible for the National Statistical Directory of Economic Units.

The organisational structure of the Institute would be modified several times in the following years. At present, the current Internal Regulations provide, in Article 3, for eight directorates general and three general coordinations directed by Julio Santaella,

president of INEGI since January 1, 2016. The general directorates are: DGES (Edgar Vielma); Government Statistics, Public Security and Justice - DGEGSPJ - (Óscar Jaimes); DGEE (Arturo Blancas); DGGMA (Carmen Reyes); Integration, Analysis and Research (Sergio Carrera); DGCSNIEG (María Isabel Monterrubio); Communication, Public Information Service and Institutional Relations (Eduardo Gracida); and DGA (Luis Zapata). The general coordinators are: Legal Affairs (Jorge Ventura), IT (Víctor Armando Cruz) and Regional Operations (Oscar Gasca).

The human, financial and material resources are transferred from the decentralised body to the autonomous one. In this way, the buildings located in Aguascalientes and Mexico City, as well as in Guadalajara, Hermosillo, Mérida and Durango become part of the patrimony of the Institute. The INEGI personnel maintain the same remunerations and benefits they enjoyed when the Law came into force and, while the respective provisions are being issued, INEGI’s Integral Professionalisation System (IPS) published on November 11, 1994, remains in force. From the outset, the new administration has been engaged in a review of the situation of the Institute’s human resources and is preparing a new Public Service Career project based on the experiences and results of the IPS and the APF’s Public Service Programme.

The Statute of the INEGI Career Service was approved at the session of the Governing Board on April 24, 2009 and the rules to regulate its operation at the session of April 27, 2010, which will come into force the following May 6. The Statute seeks to guarantee access to the Institute on an equal opportunity basis as well as on the basis of merit, to regulate and evaluate the performance of the staff, as well as to provide clear rules in the different aspects of human resources development. It provides for two sub-sectors, one for core staff, which is governed by the labour laws and working conditions in force, and the other for operational level staff to area directors.

Recruitment is done through open public calls and the selection of personnel includes curriculum assessment, interviews and a technical knowledge test prepared by a prestigious academic institution - the Metropolitan Autonomous University (UAM) - which applies it based on the profiles and needs of the Institute’s areas. These areas do not have access to the questions, which are generated electronically, and care is taken to avoid asking the same to each applicant. The Professional Career Service establishes rules for evaluation and permanence in the workplace, clearly specifying the completion channels and the processes to be followed in this regard. After 10 years of operation, 2,407 applicants have successfully passed through INEGI’s job competitions.

The Statute of Professional Service provided in its sixth transitory article that those who were already working in the Institute before its entry into force would be assessed to acquire the status of professional public servants. This assessment was carried out during 2012 and 2013, and 11,440 workers were thus appointed to this category.

The Code of Ethics was approved on January 19, 2009 as a complement to the second paragraph of Article 7 of the LSNIEG to regulate the standards of conduct to which all persons carrying out statistical or geographical activities must adhere.¹¹

In the first months of 2009, specialised technical committees (STCs) began to be formed, made up of representatives of State units and INEGI, as well as invitees from other sectors. Their rules were approved at the Governing Board meeting of April 24, 2009,¹² thus completing the regulations for the operation of the collegiate bodies of the National System of Statistical and Geographical Information (SNIIEG).

The first STCs to start operating in 2009 are, in economic statistics: the Agri-food and Fishing Sector, Tourism, Macroeconomic

¹¹ INEGI, “Acta de la sesión de la Junta de Gobierno del 19 de enero de 2009”, El INEGI como Unidad Central Coordinadora, SNIIEG.

Statistics and National Accounts, Foreign Trade, Science and Technology and the National Directory of Economic Units; in sociodemographic: Social Development, Labour and Social Welfare, Demographic Dynamics, Housing, Health and Education; in geography and environment: Water, Basic Geography, Land Use, Vegetation and Forestry Resources, as well as the Energy Sector (in coordination with economic statistics); in government, public security and the administration of justice: Government, Administration of Justice, Prosecution of Justice and Public Security. Thus, in 2009 the SNIEG is already functioning in all its collegiate bodies.

Over the next 10 years, the number of STCs is to be increased to a total of 41 active committees; in addition, the state committees for Statistical and Geographical Information (CEIEG) are to be consolidated across the federal entities.

With regard to the actual operational work of INEGI, traditional programmes continued at all times in accordance with their annual implementation schedules during 2008 and 2009, while preparations were made for programmes to be addressed in the medium term. In this regard, the new team, composed of the Institute’s general directors and the President, carried out an analysis of the priorities for 2009 that was shared with the Governing Board. This analysis identified 30 priority programmes for the institution, of which three were classified as the highest immediate priority: the 2009 Economic Censuses, the establishment and operation of SNIGSPIJ and the National Statistical Directory of Economic Units.

9.2. The 2009 Economic Censuses and DENUE

2009 ECONOMIC CENSUSES

The Seventeenth version of the Economic Censuses would take place in 2009 a few months after the start of operations of the autonomous INEGI, as the fieldwork operations were scheduled for the beginning of March.
Until 2004, the Economic Censuses were referred to in the Institute’s reports and methodology with the original censuses (Industrial, Commercial, Services, Transport, Fishing and Water) although already in that year the conducting, in practical terms, was structured according to the North American Industrial Classification System (NAICS) as a single census. INEGI has continued to use the plural form to refer to these statistical events, while those of 2004 and later are inherited versions for continuity and comparability of the original exercises, although structured in a single instrument. In 2009, the NAICS 2007 was applied and no more documentary reference was made to the other historical censuses.

The team in charge of planning the operation, headed by Susana Pérez - who is ratified as Deputy Director General of Economic and Agricultural Censuses during the transition - located within the DGEE structure.

This census programme will capture basic information on virtually all economic activities in the country, with the exception of agriculture, livestock and forestry. It will cover fishing, mining, electricity, water, manufacturing, construction, commercial as well as transport and services, in both private and public sectors.

NAICS 2007 was used for the classification of economic activities, covering 962 classes of activity out of 1,049 at that time through 29 questionnaires with common and specific topics.¹³

The traditional objectives of the Economic Censuses have been to compile the most complete statistical collection on the national economy and to be an indispensable input for the Mexican System of National Accounts (SCNM), as it permits the generation of indicators such as total gross production, value added, employment, total inputs, etc., as well as the creation of the statistical frameworks of establishments with which the economic surveys are designed. For the first time, the generating of information for DENUE was added as a priority purpose.

Prior to the operation, in 2008, training activities, cartographic updating, unit counting and a pilot test were undertaken, as well as the verification stage and integration of directories, for which 130 thousand large establishments were visited in order to corroborate their existence, type of activity, creation of branches and to agree on where the census would be carried out.

This was held from May 2 to July 31 with the participation of 25,000 people, all uniformed and identifiable by photo ID and an introductory letter, as well as a telephone number to verify the data of the interviewers who would travel to 4,900 localities across the country in total. 17,500 mobile computing devices (PDAs) with digitised cartography were used to capture the information at the time of the interviews. A total sweep was carried out in the municipal capitals and in towns with more than 2,500 inhabitants, as well as in all the corridors and industrial parks. In rural areas, probability sampling was used.

A system was introduced so that large enterprises, as well as small and medium-sized enterprises and establishments, who wished to do so could submit their questionnaires electronically (1.3% of respondents, mostly large units, did so) or by spreadsheet for multi-establishment businesses (0.2% took advantage of this). 14

An intense mass communication campaign was developed which generated more than 200 thousand spots and 800 interviews in the press, radio and television, 15 as well as interpersonal and inter-institutional communication directly with organisations and business chambers, professional associations and in the public and social sectors.

The total number of economic units in 2009 was 5,144,056, of which 4,724,892 were active in 2008 and 419,164 started in 2009, 16 providing rather useful information, although the reference year for the census was 2008.

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14 Ibid., pp. 20 & 21.
15 Secretaría de Hacienda y Crédito Público (SHCP), Cuenta pública 2009 (Mexico: SHCP, 2010), Tomo VI. Órganos Autónomos, INEGI.
16 INEGI, Metodología de los Censos Económicos 2009, p. 27.
In addition, a survey was carried out from May 18 to June 15 with a sample of 41,508 establishments to determine and correct errors in the conceptualisation of the year of commencement of operations for those that declared themselves to be starting operations in 2009.\textsuperscript{17}

In accordance with the dissemination calendar, the results were published on September 20, 2010 through the Institute’s official website. This publication was accompanied by a special presentation to the media by the Presidency of INEGI. On December 15, 2010, the complementary information of the Census scheduled for that date was presented and integrated into the institutional website.\textsuperscript{18}

**DENUE**

The 2009 Economic Censuses provided the information that made it possible to integrate the National Statistical Directory of Economic Units (DENUE), mandated in Article 23 of the *LSNIEG* as an essential element for the National Subsystem of Economic Information (SNIE). Upon being made available to the public, it became a very useful tool for the dissemination and use of statistical information, being one of the most consulted sources by the Institute’s users at present.

As we have seen, from the first days of the new administration of the autonomous INEGI, the highest priority has been given to its elaboration, which, in fact, went hand in hand with the work of the Economic Censuses and is assumed as one of the responsibilities of the team in charge of the latter. Soon Carlos Valladolid would join the DGEE for the structuring and presentation of the Directory.

The *Technical Rule for the Incorporation and Updating of Information of DENUE* was approved by the Governing Board in

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\textsuperscript{17} Secretaría de Hacienda y Crédito Público (SHCP), *Cuenta pública 2009*.

\textsuperscript{18} Secretaría de Hacienda y Crédito Público (SHCP), *Cuenta pública 2010* (Mexico: SHCP, 2011), Tomo VI. Órganos Autónomos, INEGI.
its session of July 20, 2010 and was published in the *DOF* on July 27, 2010. It will be replaced by the *Technical Rule for the Incorporation and Updating of Information in the Mexican Statistical Business Register* on August 27, 2019. *DENUE* was made available to the public for the first time on the INEGI website on August 1, 2010 in accordance with the provisions of the first transitory article of the *LSNIEG*.

The Directory, which can be consulted free of charge by any user, allows the identification of the country’s economic units by their *CLEE* (the unique statistical identification key assigned to them by the Institute), trade name, type of legal organisation, type of economic activity and stratum of employed personnel; they are located in the national territory by regions, localities, blocks and streets. This information can be viewed directly on digital cartography, allowing the location of businesses by street and block or postal code, by product offered or demanded, to be seen on local maps. A telephone number is provided with its corresponding area code, as well as an e-mail address, including the business chambers of affiliation and the countries of destination or origin of their international trade, if any.

The *Technical Rule* excludes from disclosure the Federal Taxpayers’ Register number, the name of the owner (when a natural person), the total income of the economic unit, the total staff (only the rank in which it is located is published), external staff provided by other economic units, broken down by sex or by type of remuneration or non-remuneration, as this is considered confidential information that cannot be disclosed by name or by economic unit.

The first version of *DENUE* was integrated with 4,331,202 businesses; since then it has been regularly updated and revised and is currently in its fifteenth edition.

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19 INEGI, “Norma Técnica para la Incorporación y Actualización de Información en el Registro Estadístico de Negocios de México”, *Diario Oficial de la Federación*, August 27, 2019, Article 5, fractions I, II & III.
20 Ibid., Article 5 (fraction IV), Article 7 (fractions II & III) & Article 9.
Among some of the changes made to it, in its third version published in mid-2012, it migrated from the Digital Map of Mexico system to Google Earth Enterprise and added, for the first time, a tab called Comments, through which informants can update, complete or rectify data on their establishments and users can make observations on them. Two more versions were published in 2013, the fourth in July with 4,410,199 businesses and three months later, in October, the fifth version became DENUE interactive, which retained the same number of businesses as the fourth but opened up the possibility for respondents to register their business data directly online.\(^{22}\)

In January 2015 the sixth version was published, in which the first total update of the Board was made as a result of the information obtained by the 2014 Economic Censuses. The Mexican Statistical Business Register (RENUM) was also established as the backbone of the country’s economic statistics, of which the National Statistical Directory of Economic Units is the version disseminated to the public.

Two versions were published in 2019 taking advantage of the information collected during the Economic Censuses of that year: the thirteenth in April with 5,113,397 establishments with information updated in the second half of 2018 during the preparatory operation covering large establishments, with strategic activity or which form part of international trade value chains; and the fourteenth, published on November 14 with information on 5,447,591 businesses which were active during the actual counting of the same year.\(^{23}\) This provided an unprecedented opportunity to update and make this information available in the same year as the Economic Censuses were conducted, which would continue permanently in the following months as the analysis of the final results was carried out, making it possible to publish a fifteenth edition in April 2020, in which 5,487,061 economic units were recorded.

\(^{22}\) Ibid., p. 2.

The current version covers the 32 federal entities with their 2,465 municipalities and is structured according to the National Geostatistical Framework with three levels of disaggregation or geostatistical area: state, municipal and basic, which could be urban or rural.

In addition to the five-yearly updating of the Economic Censuses and the continuous updating by respondents, INEGI does so annually with large businesses and certain sectors, branches or classes of economic activity by means of information from administrative registers of State units and the National Economic Survey (EEN) programme. A partial update of the micro, small and medium-sized business segment was also carried out through administrative registers.

From 2010 onwards, field operations are carried out every year to fundamentally update the sub-universe of large businesses and to verify the information of the economic units coming from the surveys and from sources external to the Institute.24

The information is available in the INEGI consultation system, where it is possible to download, free of charge, the information selected by the user, which may even cover the entirety of DENUE. It can be consulted on tablets and mobile phones, as well as in the platforms Digital Map of Mexico and Space and Data of Mexico and has applications for developers that can be downloaded from the Tools section.25

In the almost ten years since its creation, the National Statistical Directory of Economic Units, as a channel for the dissemination of the RENEM, together with the Economic Censuses, the EEN programme, the SCNM and price indices had become the backbone of the country’s SNIE. The variety and importance of the information offered through DENUE, in addition to its use for the implementation of public policies, is particularly useful for

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25 Ibid., p. 11.
business actors because of the data it provides for their businesses. In this way, the Directory, in addition to its original objective of presenting information on the national economy, contributes indirectly to its promotion.

9.3. A new subsystem

CREATION

By the end of 2008 it was clear that the issue of crime in Mexico was becoming more complicated day by day. The media were reporting a substantial increase in the number of homicides and crime in general throughout the country, especially robberies, kidnappings and extortion. The drug trade, although an age-old issue, seemed to suddenly take on disproportionate force. A few days after the new federal administration was sworn in on December 11, 2006, the government announced an operation against organised crime in Michoacán which, in addition to the Federal Police, was joined by the army and navy in what has been considered the beginning or declaration of war on drug trafficking by the federal government.

Crime continued rising over the following months throughout the country; 2008 would become a significant year in terms of homicides, as the trend in homicides, which had been gradually decreasing since the 1990s, from 17 per 100,000 inhabitants in 1995 to 8 per 100,000 in 2007, underwent an abrupt shift in the opposite direction, rising to a rate of 13 in a single year. The new trend will soon reach previously unimaginable figures, as can be seen in the graph.

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26 One of the possible causes of this decline could be attributed to the Programme for the Certification of Ejido Land Rights and Titling of Urban Plots (PROCEDE) which, by measuring the boundaries and legally recognising the ownership of rural land, made it possible to reduce the uncertainty and conflicts associated with it. However, to date there are no serious studies on the possible correlation of this programme with the trend in homicides.
Homicide at the nationwide level (1990-2018)*

* Preliminary figures as of July 15, 2019.

An additional problem was that at the end of 2008, not even the data on the latest evolution of homicides, which are a serious crime with a relatively low rate of non-reporting, were available in the country, nor would they be available for more than a year, much less the situation regarding the evolution of other crimes which, in number, surely affected a very high proportion of the population. There was neither timely nor satisfactory information available for use in public policies for the preventing or combatting of crime.

It is in this context that, based on a general analysis of the information needs of Mexican society at that time, Eduardo Sojo proposed, in the early days of the autonomous INEGI, the possibility of creating an information subsystem that would provide data on crime, which would be added to the other three subsystems originally considered by the *LSNIEG.*

The task of designing and developing this project fell to the author of this book, who was Vice-President of the Governing Board at the time. Coincidentally, a few days after starting the respective analysis, Adrián Franco, still a public servant in the Ministry of Public Administration (SFP), presented a proposal for the creation of a programme to produce information on the functions or activities of the different levels of government in the country.
The synergy between the two approaches was immediately clear, as a comprehensive analysis of public policy on crime requires, in addition to the inherent aspects of anti-social behaviour, victimisation and the damage caused, the reaction and attention that the state devotes to it for combatting and prevention. In other words, the actions of governments with respect to crime become part of the criminological equation and, for its analysis, both require and are susceptible to statistical treatment.

In this way, the new subsystem was configured in such a way that it could address the most immediate priority identified, which was the issue of crime at that time, in a format that sought to measure government activity in this regard and added the issue of justice. It would then be extended to all government activities.

Once the proposal was structured and reviewed by the Presidency of the Institute, together with the legal and administrative areas, it was socialised and refined with academic experts and public policy makers related to the issues that the new subsystem would cover. Among these was Senator Carlos Lozano from Aguascalientes, the representative of the Legislative Power in the NAC of the SNIEG, who not only valued it positively, but also enthusiastically decided to sponsor its presentation before this collegiate body, which has as one of its attributions the proposing of the creation of new information subsystems and which supported this proposal on December 3, 2008 in its first session.

The Governing Board of the Institute, at its meeting on December 8, approved the creation of this subsystem (SNIGSPIJ), which was subsequently included in the LSNIEG by amendment published on June 25, 2018 in the DOF (Articles 28a et seq.). At the same session, the President of INEGI, in exercise of his powers, appointed Vice-President Mario Palma to attend to and coordinate matters relating to the SNIGSPIJ and to chair the respective Executive Committee. The Executive Committee was installed on February 6, 2009.
with representatives from the Ministries of the Interior (SEGOB), National Defence (SEDENA), Navy (SEMAR), Public Security (SSP), Finance and Public Credit (SHCP) and Public Administration (SFP), as well as from the Attorney-General of the Republic (then PGR), the Federal Judiciary and the National Council of Public Security.

A decision was taken to create an operational area with the aim of designing the information production programmes that would constitute the required measurement instruments, as well as identifying and integrating the producing State units and information users into the subsystem. This area was initially attached to the DGES at the level of a deputy general directorate and will become the Directorate General for Government Statistics, Public Security and Justice on May 27, 2012.

Its first incumbent, Adrián Franco, was appointed by the Governing Board at its meeting of May 25, 2009. Immediately, a team of young professionals were brought together to undertake this innovative project, which included, among many others, Edgar Vielma and Óscar Jaimes, current general directors at INEGI, and Edgar Guerrero, now general director at the Attorney General of the Republic (FGR).

On June 22, 2009, the Governing Board approved the creation of four STCs: Government, Public Security, Procurement of Justice and Administration of Justice to which, subsequently, Crime Prevention and Open Data (extinguished in 2019), Penitentiary System and Human Rights would be added.

Although there are previous isolated experiences, no country had ever developed a subsystem or system with the holistic approach as intended in this case. The two most prestigious national victimisation surveys in the world were studied: the British and the American surveys. In the United States of America (USA), it was found that censuses of government activity had been conducted since 1956, but there was little else internationally.

In a process of exploration and learning, the United Nations Office on Drugs and Crime (UNODC), the international
organisation that deals with these issues and which was at that time in the process of developing, together with the United Nations Economic Commission for Europe (UNECE), the \textit{United Nations Manual on Victimisation Surveys}, to be published in 2010, was soon contacted.

The relationship with UNODC will lead to great benefits for INEGI in the acquisition of techniques and methodologies that will eventually be reflected in the various international programmes that will be jointly promoted in the United Nations (UN).

PROGRAMMES

In 2009, work began on a census scheme to collect information on governments and on victimisation surveys that would serve as a starting point for subsequent development of the subsystem.

The first census-type information programme, although it was called the National Survey of Government, Public Security and Municipal Justice, was carried out from October 2, 2009 to May 31, 2010 with the aim of obtaining information on the action, management and performance of the country’s municipal governments and the then delegations of the Federal District (DF). It covered their organisational structure, the distribution of their resources, mechanisms for citizen participation, the exercise of their public security, civil protection and other public service functions, the management and execution of social programmes, as well as the characteristics of the infrastructure and exercise of the municipal justice function in public security. Information was scheduled to be collected from the 2,440 municipalities and the 16 delegations of the Federal District existing at that time.

The theme covered five sections with 195 questions on: government, public security, municipal justice, social development and the environment which included two chapters, one on \textit{Water, Sewerage and Sanitation} and the other on \textit{Urban Solid Waste},
obtaining valuable information about the environment, in coordination with the National Subsystem of Geographic and Environmental Information (SNIGMA). 27

In addition to the staff responsible in central and regional offices, 176 people were recruited on an *ad hoc* basis 28 who directly contacted and visited the officials responsible for providing the information in each municipality or delegation; in certain cases of small and/or isolated municipalities, this was done with the municipal presidents themselves who often perform more than one function at the same time.

The work of supporting respondents was of particular importance in helping them to obtain the information, so it was necessary to adapt to the highly varied circumstances of the country’s municipalities, in which some of them may have modern administration structures with professional staff, while others depend on the practically free work of citizens with little formal education, sometimes not even speaking the Spanish language. This statistical exercise generated information on 98% of the total number of municipalities and delegations, having covered 2,408 local governments out of a total of 2,456 for which a visit was planned. 29

The information yielded a wealth of data not previously obtained both at the individual level of each municipality or delegation and at the state and national levels on a large number of subjects: number of personnel by type of assignment, municipal public administration property, computers, transfer mechanisms, statistical production capacity, Internet connection, economic development, interventions by the municipal police, security and justice personnel, administrative procedures and even the number of cells for making arrests with their surface area and destination according to sex and age.

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For practical purposes, this survey was the first census of municipal government, as it was intended to cover all government activities in all municipalities and delegations in the country. At that time, the preferred term was still ‘survey’ to avoid confusion with the traditional Economic Censuses scheduled in advance for that same year with a new census variety still unknown in Mexico and in most of the world.

In addition to its usefulness for the data provided to the public and public policy decision makers, it inaugurated a new format for structuring the instruments to capture government information: the administrative records censuses. These will evolve the collection of information as they are incorporated into the work of the STCs, where they are analysed as joint projects between the respondents (governments, courts of justice, public prosecutors’ offices, etc.) and INEGI, and are carried out in the same statistical exercise with dates common to all the information providers. In the STCs, working groups are formed to organise their planning, integration of the questionnaire, information gathering, advice from the Institute on the use of the information and comparability, etc.

The second version of the Municipal Survey, conducted in 2011, has already changed its name to the National Census of Municipal and Regional Governments (CNGMD) 2011, and will continue to be conducted every two years in the years ending in odd numbers, the last one published being that of 2019. These exercises are consistent with the survey/census carried out in 2009, maintaining continuity and methodological standardisation, which allows the statistical series to be generated from that year onwards.

In April 2009, the Continuous Survey on Public Safety Perception (ECOSEP) was launched, generating estimates with national coverage to obtain the Public Security Perception Index (IPSP). Its aim was to ascertain the perception of the population over 18 years of age with respect to their personal security and public security in the country, both in relation to a previous year and their expectations a year later.30

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The ECOSEP will become the National Urban Public Safety Survey (ENSU), which starts quarterly from 2013 and continues to be conducted to date. It provides information from 70 cities on perceptions of insecurity, social expectations of crime trends, evidence of criminal or antisocial behaviour - including theft or illegal sale of petrol or diesel (*huachicol*) -, change of routines, perception of authorities’ performance, households that are victims of theft and/or extortion, perception of insecurity in specific physical spaces, etc.

Another priority issue for the subsystem, and one that has been addressed since its creation, was that of victimisation surveys, which are indispensable for understanding the reality of crime because a significant proportion of illicit crimes are not reported to the authorities, meaning administrative records are not an accurate reflection of the number of crimes committed in a country.

Victimisation surveys, by addressing the population directly and thereby detecting victims of crime, are the only source for an estimate of the number of such victims (prevalence) and the crimes (incidence) committed in a country over a given year.

Firstly, an exhaustive review was made of the specialised literature and methodological documents of the surveys in the USA, England and Wales, as well as of the International Crime Victims Survey (ICVS) promoted by European criminologists. UNODC was contacted, where the team in charge of the statistical information headed by Angela Me was involved, as we have said, in the elaboration of the *United Nations Victimisation Survey Manual*, in order to receive advice for the survey.

A review was also made of the National Insecurity Surveys (ENSI) carried out in Mexico by the Citizens’ Institute for Insecurity Studies (ICESI) since 2001, in which INEGI had participated in its ENSI-3 version in 2004 and would do so again in 2009 (ENSI-6) and 2010 (ENSI-7) as the responsible party for the field survey, as well as the review of the perception part of the questionnaire.

From INEGI’s review, it was concluded that a new survey with substantial innovations to the entire questionnaire was needed, in
line with successful experiences worldwide. However, the ICESI preferred not to make changes to the victimisation questions, leading INEGI to develop its own survey.

The conceptual statistical design, including the aspects related to the field survey, required very special care due to the sensitivity of the subject, the difficulties experienced by the victims in remembering and narrating traumatic situations, and the necessary guarantee of confidentiality regarding the use of personal data that must be given to the respondent and that is also required by a public institution obliged by law to comply with it.

Its main objective would be to calculate the number of crimes and people who suffered criminal victimisation in the year prior to the survey with the percentage distribution by type of crime, as well as the perception of crime at the time of the interview. It would also estimate the *dark figure* resulting from the sum of unreported crimes and those reported but not leading to an investigation of the crimes. This survey would measure, along with the perception of security, the degree of trust in the institutions responsible for public security and justice, and would calculate the costs to individuals of protecting themselves against crime.

In addition, there was the political aspect derived from an issue that had come up for public discussion and which made it necessary to ensure, along with the quality of the data, the information was produced by a totally neutral institution. In this sense, the team was aware that the soundness of the survey had to resist both the criticisms of the authorities (especially state governors) who may not accept the data and the suspicions of the critics of these authorities regarding a possible undercounting in their favour.

On the recommendation of the UNODC, a decision was taken to include, along with the questionnaire, a card containing a series of descriptions of the crimes, which would be shown to the interviewees so that they could identify whether they had been victims of criminal behaviour. In this way, it was sought to avoid the omitting of certain crimes, either because they were ignored as consti-
tuting criminal behaviour or because they had been forgotten due of their limited impact, the time elapsed or even their solution.

In addition, so-called telescopic effect controls were applied to ensure that the events narrated were recorded in the correct reference year and did not include earlier or later events. It was also clearly divided between individual crimes and those affecting the whole household. For the date of the survey, care was taken to ensure that it began relatively close to the reference year and was simultaneously undertaken throughout the country. The questionnaire was reviewed with UNODC experts, with the participation of Angela Me and Enrico Bisogno in particular.

Finally, the presentation and dissemination of data was in line with the principle observed in all cases by INEGI that the role of the statistical office is limited to its mandate of producing information and making it available to the public without making value judgements. In this sense, the issuance of classifications or rankings of authorities based on results was decided against, a practice that had sometimes been used by other bodies and which, in addition to its political connotations, entailed serious technical difficulties, as the phenomenon of crime presents very complex facets for comparison when considering type of crime, damage or frequency.

Thus, the National Survey on Victimisation and Perception of Public Security, known by its acronym ENVIPE, was designed. In 2010, the National Council of Public Security, in its twenty-eighth session, decided that the security surveys should be carried out continuously and that they would use INEGI’s survey as a reference.31

The first edition of ENVIPE, aimed at people over 18 years of age, was held from March 14 to April 22, 2011 and its results were presented on September 20 of the same year,32 an event in which the UNODC delegate in Mexico, Antonio Mazzitelli, participated.

32 From this date, ENVIPE is published in the final week of September of each year.
The size of the sample was 78,179 homes, allowing for information to be provided at the national and state level, as well as for 17 urban areas.\textsuperscript{33}

ENVIFE 2011 estimated that 24\% of the population aged 18 and over had been victims of some kind of crime (prevalence) during 2010 (ENSI-3 had given 11.3\%; ENSI-6, 11.2\%; and ENSI-7, for 2008, reported 10.1\%, which definitely ruled out any insinuation of underestimation in favour of any authority) and that 22,700,000 crimes (incidence) associated with 17.8 million victims (1.3 crimes on average per person) had been generated, representing a rate of 30,490 crimes per 100,000 inhabitants. The \textit{dark figure} estimated at the national level was 92\% and data was obtained on why people fail to report. It also estimated that 39.5\% of the population considered their closest environment, district or locality to be unsafe, a percentage that rose to 60.1\% in the municipalities.\textsuperscript{34}

Its results were widely disseminated and presented directly to the states’ authorities by INEGI’s regional directors and states’ coordinators. Doubts were immediately addressed, and the soundness of the work could be conveyed to authorities, experts and the general public.

An interesting case occurred in the state of Aguascalientes, already governed by Carlos Lozano - one of the original promoters of the subsystem - as, despite being one of the entities with the best reputation for security in the Mexican Republic, it turned out to be the one with the highest crime rate in the country with 56,496 crimes per 100,000 inhabitants, considerably more than the country’s average of 30,490, while all its crime perception figures were below the national averages.

An analysis of the reported figures immediately identified that total or partial theft of vehicles appeared with extremely high data

\begin{itemize}
\item \textsuperscript{34} INEGI, “Encuesta Nacional de Victimización y Percepción de la Seguridad Pública (ENVIFE) 2011. Principales Resultados” (presentation, INEGI), September 20, 2011.
\end{itemize}
which, once separated, concentrated on auto parts theft. This data confirmed some generalised knowledge among the local population, who commonly suffered from the theft of batteries from their vehicles, and made perfect sense to the authorities who, although they were aware of the phenomenon, had not been able to assess it in its real dimension. This information led to a series of measures taken by the local authorities, aided by INEGI’s cartography, to locate the areas where the crime was committed and the places where the stolen merchandise was sold. It also illustrates the difficulty of comparing different states by the number of crimes without taking into account the particularities of each type of crime.

No authority in Mexico rejected the ENVIPE data, which was accredited as an instrument of reference for knowledge and analysis of the country’s security situation before public opinion, experts and academics, as well as all levels of government. Furthermore, for the 2013-2018 National Development Plan (NDP), information, from ENVIPE, on crime prevalence and public confidence in police was included as a reference to contextualise the public security situation in the country, and the victimisation rate estimated by this survey was established as an indicator in assessing the progress of the administration’s anti-crime strategy.35

From 2011, the Survey would be conducted annually, thus initiating the respective time series. Its methodology has been reviewed and improved on an ongoing basis. The number of homes visited for ENVIPE 2019 was 102,043.

In 2013 the register for the crime of kidnapping was added, broken down by duration of the crime. This is an illegal act that had spread throughout the country and for which there were not even approximate figures until then as, on the one hand, its reporting to the authorities is very low and, on the other hand, although it is a crime classified as very serious and has increased considerably in recent years, it does not reach the volumes

needed to be detected under traditional methods even from a survey of 100,000 homes such as ENVIPE.

In order to be able to estimate this crime, a methodology was designed that focuses on capturing the illicit activities that affect the household rather than being limited to the individual interviewed. This methodology used the case of homicides as a control measure, which was compared with the reported statistics for this crime (which has a relatively low dark figure), with similar data between the two.

The first estimate showed 105,682 kidnappings in their different forms and 94,438 victims in 2012, a figure that had a great impact on public opinion, especially because the administrative record of this crime for 2012 was 1,317. Even the non-governmental organisations (NGOs) dedicated to this issue had an estimate of 5,000 to 10,000 kidnappings based on the information they collected directly. INEGI proceeded to explain the methodology used to both the public and to experts and academics. It was even necessary to use the media, such as television and radio broadcasts.

The information made it possible, for the first time, to delineate a reality, which was widely known and commented on, but whose extent was unknown. Once the universe of tens of thousands of locations in the country is assessed, where kidnapping has become a lucrative activity with a very low risk rate regarding criminal prosecution, it begins to make sense. This question has been maintained in subsequent ENVIPEs, always presenting high rankings in

36 The confidence interval for the number of kidnappings was (84,605 ; 126,759), while the number of victims was between (78,095 ; 110,781), which means that the closest estimate to the reality of these two figures lies between these two intervals, the most likely estimates being 105,682 kidnapping crimes and 94,438 victims.

37 Complaints of the common law registered with the Public Prosecutor’s Office. Reporte de Incidencia Delictiva del Fuero Común 2012 of the Secretaría Ejecutivo del Sistema Nacional de Seguridad Pública (SESNSP) with a cut-off date of August 22, 2013. Currently, the figures reviewed by SESNSP for this crime report 1,421 kidnappings in 2012 (SESNSP, “Incidencia Delictiva del Fuero Común”, Información de Incidencia Delictiva).

this crime. In 2019, the number of victims for 2018 was 79,315 with a confidence interval of $(67,979 ; 95,953)$.\textsuperscript{39}

For the record...

One of the examples that was used to illustrate the figure’s logic was the case of Belgium,\textsuperscript{40} a country not particularly known for this crime, which in 2012 reported 1,185 kidnappings. This figure, extrapolated from the approximate population of that country in that same year (11,106,932 inhabitants)\textsuperscript{41} to that of Mexico (with projections to mid-2012) of approximately 117.3 million, would put them at levels higher than the 12,500 reported kidnappings, without taking into account that country’s own dark figure, which could substantially increase these numbers. ENVIPE’s estimates were therefore beginning to follow a different logic from that used up to that point.


\textsuperscript{40} UNODC, “Statistics on crime”, DataUNODC.

\textsuperscript{41} The World Bank, “DataBank”.

Cartoon by ©Patricio published on October 2, 2013 in the newspaper Milenio on the occasion of the publication of information on kidnapping from ENVIPE 2013.
Also, in 2009, a review was initiated of the process to produce the homicide figures that INEGI collects from death certificates signed by forensic doctors throughout the country and which form part of statistics on mortality. The process was slow, taking approximately 12 months after the end of the reference year. A programme was implemented in collaboration with the Ministries of the Interior (SEGOB) and of Health (SSA) and the state governments, reducing the presentation of preliminary results to six months at present.

The municipal survey/census and ENVIPE will mark the beginning of an expansion of programmes that have sought to meet information needs in the areas of the new sub-system. These had not been previously considered under a comprehensive and regular information scheme in any statistical agency, so the Institute began to gain international leadership as it moved into new fields of study.

As for the censuses, the National Government, Public Security and States’ Penitentiary System will soon be added. The first version of this census, conducted in 2010, is classified as a survey and, from 2011, as a census once a methodological and conceptual review in which the Governing Board participates, in addition to other areas of INEGI, determines that it meets the census characteristics of universality. Its objective is to collect, generate and disseminate information on the public management of state public administrations in the areas of government, public security, the penitentiary system and justice.

As with municipal censuses, it involves direct coordination with state governments. Since the first survey, there has been wide participation and response from the states, despite the fact that this is a new scheme for requesting information from them.

There was only one exception at one time when a state public security authority - which will remain anonymous for the purposes of this book - refused to release data on the grounds that a local legal provision prohibited it. Upon review of the provision, it was confirmed that not only did it not state a prohibition, but that it did not even address the issue of providing information. As the data for the
other 31 federal entities had already been received by then, it was informed that, in the event that INEGI did not have the information of their state, this would appear as the only omission accompanied by an asterisk indicating the reasons they had given for not providing it. Fortunately, the information was sent within 15 days, which is why the failed offender remains anonymous in this publication.

This census is conducted annually, and its most recent version was submitted on October 25, 2019. It contains data that had never before been unified in a single reference document; just a few examples of this among a wide constellation are: it reports 2,507,558 people working in state public administrations, in which 353 million services are performed. The first data can be consulted by age, sex (54.3% are women) and schooling; the second by type of procedure. Both are available by state and can also be compared with similar data from the municipal and federal censuses, allowing for the understanding and comparison of the reality of the country in these aspects for better planning.42

In 2011 another two national censuses will be added for state-related information: that of the States’ Prosecution of Justice (CNPJE) and that of the Administration of Justice (CNIJE).

The purpose of the CNPJE is to generate information about the state prosecutors’ offices, their organisation, infrastructure, personal, material and budgetary resources, the exercise of their functions in both the traditional trial system and the Oral Hearing System, the pursuit of justice for adolescents and their regulatory framework.43

Of particular importance for the design of this census was the coordination with the National Conference for the Prosecution of Justice (CNJP), which brings together all the prosecutors and state attorneys of the country, which was invited to join as such the STC

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for the Prosecution of Justice, having agreed to replicate the issues on the agenda of this Committee related to the states’ prosecution of justice in the agenda of the CNPJ.

Subsystem officials from the Institute interacted personally from the beginning at the meeting of prosecutors to explain the objectives and benefits of having this information for their own public policies. The initial objections expressed by a small minority that the data produced would be used against them politically were countered with the methodological and technical guarantee of the autonomous INEGI to collect information, together with the argument that if the results were of high quality, the first beneficiaries would be themselves. In this way, they would not depend on deficient information or face the possibility of their subordinates hiding information from them, arguments that finally led to the unanimous consensus to start this census, which from 2011 is carried out annually and its most recent edition was presented on October 25, 2019.

The CNIJE also began in 2011, aiming to collect and disseminate information on the institutions that make up the judicial powers of the states. It seeks to gather information on the organisation of the States’ High Courts and Judiciary Councils; characteristics of their human, budgetary and material resources; the exercise of their functions, procedures and services, including e-government and their regulatory framework; the number of judicial processes and their current stage; justice for adolescents and infrastructure of alternative justice and/or mediation and/or conciliation centres. The information presented informs of the progress in the attention and resolution of trials.

The implementation of this Census was agreed within the STC on the Administration of Justice with the Conference of the High Courts of Justice of the states, which from the beginning expressed a priority interest in improving judicial statistics. The first representative of the Federal Judiciary and president (2009-2012) of the Com-

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mittee, Jorge Antonio Cruz - Federal Judiciary Counsellor and after an interlude of several years again president of the STC since 2017 -, who had previously played a relevant role in the structure and production of federal judicial statistics, contributed in a special way to the integration of this project, which has been carried out annually since then. The CNIJE was declared Information of National Interest (INI) in 2012. Its most recent version was published on October 25, 2019.

This state census will be the direct antecedent of the National (Federal) Census of Administration of Justice (CNIJF), beginning in 2013. In the first edition, information was collected for the years 2011-2013 and, from then on, it is collected on an annual basis. It was declared INI in 2016 and its most recent version was published on July 5, 2019.

Its objective is to generate information on the management of the Federal Judiciary in its governance and justice delivery functions. It covers the management of the Supreme Court of Justice, the Electoral Tribunal of the Federal Judicial Branch and the Federal Judiciary Council composed of collegiate and unitary circuit courts, district courts, federal criminal justice centres and the National Centre of Specialised Justice in Control of Investigation Techniques, Detention and Intervention of Communications, as well as the full circuit courts, for a total of 908 jurisdictional bodies at the end of 2018.45

In a similar way to its state equivalent, it presents information on human, financial and material resources, as well as on its judicial function, making it possible to monitor the attention of matters entered, pending and resolved.

Several national censuses at federal level followed: the Federal Government Census (CNGF), starting in 2017 and generating information on the performance of all the institutions that make

up the APF, worked within the Government STC and carried out in coordination with the SHCP and the Commission for Regulatory Improvement (COFEMER). The results of its third version for 2019 were presented on February 28, 2020.  

In 2018, the Federal Censuses on Public Security (CNSPF), the Prosecution of Justice (CNPJF) and the Penitentiary System (CNSPEF) would be launched. Their most recent results were published in December 2019.

INEGI also has a series of censuses on autonomous bodies. In 2016 the national censuses on Transparency, Access to Public Information and Personal Data Protection will begin at state and federal level on a biennial basis. On the state side it generates information on the management and performance of the guaranteeing bodies of each state in their functions of government, transparency, access to information and protection of personal data; and on the federal side it covers the activities of the National Institute of Transparency, Access to Information and Protection of Personal Data (INAI), formerly the Federal Institute of Access to Public Information and Data Protection (IFAI).  

INEGI began the national censuses of State and Federal Human Rights in 2017. These censuses aim, in the case of the former, to generate information on the management and performance of human rights protection agencies in each state and, federally, of the National Human Rights Commission in its government functions and the process of human rights protection. It is published annually, and the results are published in December. 

Also, in 2017, the National Census of the States’ Legislative Branches will begin annually with the aim of generating information on the government and legislative management of the

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state congresses and the Legislative Assembly of Mexico City.\textsuperscript{49} It is published in December of each year.

The survey programmes have also experienced strong development, increasing their number significantly since the first years of the Subsystem’s operation. The National Survey on the Quality and Impact of Government (ENCIG) was to begin in 2011 with a biennial periodicity and with the purpose of gathering information on the experiences and perceptions of the population regarding public procedures and services provided by the different levels of government, including those of public security and justice.

It measures the quality of procedures, the assessment of basic services and priorities for improvement, as well as the perception and experience of corruption by respondents. Originally, it had a sample size of 33,000 households undertaken in towns of 100,000 inhabitants and more. Its 2019 version increased the sample to 46,000 households. It covers basic public services on demand, such as public education; federal and state health care; electricity supply; payments for electricity, drinking water, property and tenancy; high-frequency procedures, such as vehicle and fiscal procedures, among others; low frequency, such as applications for housing loans, construction permits, appearances before the Public Prosecutor’s Office, issuance of passports, opening of businesses, etc.; applications for services, such as medical care and emergency calls to the police, to name but a few; as well as acts of authority, i.e. experiences of contact/interaction with public security authorities on fines, offences, arrests, etc.

ENCIG, together with ENVIPE and the National Survey of Business Victimisation (ENVE), are the INEGI surveys that capture data on corruption. As such, comparison is possible of the citizens’ perception with the experience of corruption events when carrying out a personal procedure, information that is obtained by type of procedure, payment or public service request. According to the results of the most recent ENCIG publication, the proportion of

\textsuperscript{49} INEGI, “Censo Nacional de Poderes Legislativos Estatales 2017”, Programas.
the population who had contact with a public official in 2019 and experienced at least one act of corruption was 15,734 per 100,000 inhabitants, making this crime the most prevalent of all those committed in the country.⁵⁰

In 2012, ENVE was to be launched as a complement to ENVIPE in order to have a broader view of the victimisation phenomenon around the country, in this case focusing on private sector companies. It is probabilistic and has a biennial periodicity with national and state coverage. It began with a sample of 27,743 economic units which was later expanded to 32,588 for its fourth edition in 2018. It presents information on prevalence (businesses victims of crime) and incidence (crimes) by sector (commerce, industry and services) and by size of business (micro, small, medium and large) by type and cost of crime. It estimates the dark figure, the perception of public safety and the performance of authorities.⁵¹

It will be the first ever large-scale national survey in Latin America to measure crime against businesses and, unlike previous international studies and surveys that focused predominantly on white-collar and other corporate-related crime, it focuses on the victimisation of businesses.⁵²

Among the myriad data provided by ENVE, it is worth noting that 37.7% of the country’s economic units were victims of crime during 2017, according to data published in 2018.⁵³

In 2014, within the framework of the National Programme for the Social Prevention of Violence and Crime, the Social Cohesion

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Survey for the Prevention of Violence and Crime (ECOPRED) was carried out in collaboration with SEGOB - which financed it - with the aim of generating estimates on some of the factors leading to the emergence of criminal and violent behaviour. It measured risk factors in young people between 12 and 29 years of age, relationships within families and between members of their community and the general social context in urban areas. The survey was conducted in 97,754 households in 47 cities of interest.54

It is probably the only survey in the world with the characteristic of measuring social conditions with the purpose of using it in social prevention. Unfortunately, due to changes in government priorities, it has not been subsequently possible to replicate this statistical instrument.

The National Survey on the Dynamics of Household Relationships (ENDIREH), as mentioned above, was conducted in 2003, 2006 and 2011. For its 2016 version, a detailed review of the three previous surveys was carried out in order to improve the instrument, and a new proposal for questionnaires was developed which brought together aspects present in some of the previous instruments and absent in others. The questionnaires included acts of violence not previously considered, covering all women regardless of their marital status, and were considered in the light of the specific areas in which they might occur (school, work, community, family and partner).

This was defined together with the National Institute for Women (INMUJERES) and a group of experts on the subject from various governmental, academic and civil society institutions: the National Autonomous University of Mexico (UNAM), El Colegio de México (COLMEX), UN-Women, the National Commission for the Prevention and Eradication of Violence against Women, the Ministries of Health (SSA) and Public Education (SEP), the Special Prosecutor’s Office for Crimes of Violence against Women and Trafficking in Persons of the PGR, etc.

A pilot test was conducted in 2015 across over 8,000 households to test the modifications and the survey was launched in October-November 2016 across 142,363 households holding interviews with women aged 15 and over. A response rate of 85.7% was obtained, which is particularly important in a statistical operation on highly sensitive topics and reflects the training of the INEGI team (in this case, exclusively female interviewers), distinguished by their level of academic preparation and training for this type of survey.55

The National Survey of Regulatory Quality and Government Impact on Companies (ENCRIGE) 2016 is another case of a survey that, although it produced relevant information, was only conducted once. It was developed in response to the government’s priority at the time to address the issue of justice as an objective of regulatory improvement. INEGI, in collaboration with the SHCP, the Ministry of Economy (SE), the Federal Commission for Regulatory Improvement (COFEMER) and the Centre for Economic Studies of the Private Sector (CEESP) joined forces to carry out this survey, providing information on government related procedures and services. It had a sample size of 34,681 economic units with national coverage and by state, company size and sector. It covered 42 municipalities and strategic delegations in the country.56

In 2016 the National Survey on Access to Public Information and Protection of Personal Data (ENAID) was carried out in collaboration with the INAI, gathering information on the degree of awareness of the rights of access to information and protection of personal data, as well as the mechanisms for exercising and guaranteeing them. Fourteen thousand homes were surveyed, and the results were presented in October 2016.57

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This same year, the National Survey of the Prison Population (ENPOL) 2016 was launched with the aim of obtaining statistical information on the conditions of detention and trial of persons legally deprived of their freedom, their demographic and socioeconomic profile, as well as the crimes for which they were prosecuted and sentenced. The sample size was 64,150 persons over 18 years of age imprisoned, distributed across 338 prisons at the federal, state and municipal levels, with national coverage, by state and for 37 prisons of interest. The results were published in July 2017.\textsuperscript{58}

Also, in 2017, the National Survey of Adolescents in the Criminal Justice System (ENASJUP) was launched to generate information on legal processes, crimes, precautionary measures, mechanisms and execution of noncustodial and custodial punishment for adolescents, with a sample size of 5,038 people registered in the Criminal Justice System.\textsuperscript{59}

Finally, in the same year, the National Survey of Police Professional Standards and Training (ENECAP) was carried out to obtain information on the socio-demographic characteristics, background and membership, entry and admission process, basic techniques of the police function, police habits, daily activities in the function, relationship with the corporation, command and co-workers, victimisation, equipment and experiences of possible acts of corruption. The size of the sample was 56,125 police members with national and state coverage for the State, Municipal and State Ministerial or Investigative Police. The data were published on November 12, 2018.\textsuperscript{60}

A CENTRE OF EXCELLENCE

As cooperation with the UNODC intensified, the idea of creating a specialised body to develop research and products on statistics

\textsuperscript{58} INEGI, “Encuesta Nacional de Población Privada de la Libertad (ENPOL) 2016”, Programas.

\textsuperscript{59} INEGI, “Encuesta Nacional de Adolescentes en el Sistema de Justicia Penal (ENASJUP) 2017”, Programas.

\textsuperscript{60} INEGI, “Encuesta Nacional de Estándares y Capacitación Profesional Policial (ENECAP) 2017”, Programas.
related to crime and congeneric issues emerged. The objective was that, while supporting the internal work of SNIGSPIJ in Mexico, an international agenda with an emphasis on the Latin American and Caribbean region would also be present. Thus, the INEGI-UNODC Centre of Excellence for Statistical Information on Government, Public Security, Victimisation and Justice (CoE) was created through an agreement signed on December 1, 2010.

INEGI fitted out offices for the CoE in the main building in Mexico City (CDMX), located at Av. Patriotismo 711, Ground Floor, inaugurated in May 2011 by Eduardo Sojo and Angela Me on behalf of Yuri Fedotov, Secretary General of the UNODC, who could not attend on that date due to scheduling issues, but would come the following October to reiterate this inauguration personally.

After participating in the selection process under UNODC rules, Salomé Flores was appointed as the Centre’s coordinator, taking responsibility for the implementation of its programmes, a task that she continues to date.
The CoE’s objectives are aimed at the development of statistical systems on security and criminal justice through the improvement of methodologies and the generation and adoption of international standards. It also provides assistance for the strengthening of technical capacities in these areas in Latin American and Caribbean countries.\(^\text{61}\)

In particular, it places emphasis on the development of victimisation surveys in the region, provoking the creation of the Victimisation Laboratory (VicLab) to generate and disseminate knowledge about good methodological practices in accordance with the most advanced international standards and which leads to the Regional Initiative for Victimisation Surveys in Latin America and the Caribbean with the aim of producing comparable data on victimisation in the area.

To date, 16 Latin American nations, in addition to Mexico, have participated in VicLab through which courses on victimisation and its measurement are offered both face-to-face and online - the latter designed with the support of INEGI’s training area - which are offered in Spanish and English and have been attended by more than 1,151 people from 37 countries.\(^\text{62}\)

Since 2013, INEGI also leads the Working Group on Security and Criminal Justice Statistics, created as part of the programme of activities of the Statistical Conference of the Americas (SCA) of the Economic Commission for Latin America and the Caribbean (ECLAC) and in which the CoE acts as Technical Secretariat.

As of 2011, the CoE organises the annual International Undergraduate and Graduate Thesis Competition with the aim of recognising academic degree papers that use statistical data on public security, victimisation and justice. This contest has encouraged the study of these topics and has produced excellent

\(^{61}\) Centro de Excelencia para Información Estadística de Gobierno, Seguridad Pública y Justicia, “Acerca del Centro de Excelencia”, UNODC-INEGI.

\(^{62}\) Salomé Flores (Coordinator of the Centro de Excelencia UNODC-INEGI), preliminary data provided to the author, December 4, 2019.
works by Mexican and foreign students from prestigious universities in Mexico and around the world.

In 2012, the International Conference on Governance, Security and Justice Statistics began to be held every two years. The first version took place that year in Aguascalientes at INEGI’s facilities, hosting 400 participants from 28 countries.

Probably the first conference of its kind, from the outset it went beyond regional boundaries and became a global forum where national statistical offices, representatives of other government agencies, academia and civil society, as well as international bodies, converge to exchange ideas, good practices and proposals on the production of information on these issues.63

63 Centro de Excelencia para Información Estadística de Gobierno, Seguridad Pública y Justicia, “Conferencia Internacional sobre Estadísticas de Gobierno, Seguridad Pública, Victimización y Justicia”, UNODC-INEGI.

Renovation of the INEGI-UNODC Convention
(Vienna, Austria, 2012)

From left to right: Adrián Franco, Mario Palma, Alejandro Díaz (Mexican ambassador in Austria), Eduardo Sojo, Yuri Fedotov, Angela Me, Salomé Sierra, Kristian Hölge, Cecilia Villanueva & Enrico Bisogno.
In 2014, the second edition of the Conference took place at the
conference hall of the Ministry of Foreign Affairs (SRE) in CDMX,
experiencing high levels of participation from international orga-
nisations. Within the framework of the Conference, the Organisation
for Economic Co-operation and Development (OECD) presented
the publication: Public Administration Overview 2014.

The following conferences were held in Mérida, México, in
2016 and in Lima, Perú, in 2018. The fourth edition of the Confer-
ence is scheduled to take place in CDMX in September 2021.

The CoE became an instrument for the supporting of two ini-
tiatives presented by INEGI and UNODC at the UN. The first was
the Roadmap for Improving Crime Statistics at the National and
International Level, which was unanimously approved in 2013 by
both the UN Statistical Commission (UNSC) and the UN Commiss-
ion on Crime Prevention and Criminal Justice (CCPCJ).64 Its results
include the revision and improvement of the Manual of Victim-
isation Surveys and international cooperation for the development
of these surveys, in addition to two projects never before carried out:
the International Classification of Crime for Statistical Purposes and the
Manual on Corruption Surveys.

The Classification had been a project discussed for many
years without ever taking shape, while other classification proj-
ects were materialising, such as that of Diseases (since the end of
the 19th century with the leadership of the International Statisti-
cal Institute. By 1951, the UN had already highlighted the impor-
tance of preparing a standard classification of crimes.65 However,
the difficulties of combining different legal cultures and the termi-
nology used in the enormous variety of languages practiced in the
world made this task difficult. In 2009, the Conference of European

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64 United Nations Statistical Commission, “Report of the National Institute of
Statistics and Geography of Mexico and the United Nations Office on Drugs and
Crime on a Road Map to Improve the Quality and Availability of Crime Statistics
at the National and International Levels”, UNSC, December 19, 2012 (document:
E/CV.3/2013/11).

65 United Nations Office on Drugs and Crime, International Classification of Crime
Statisticians (CES) established a working group led by UNODC and UNECE to develop a framework for a classification of crime based on descriptions of behaviour rather than legal codes. As of 2012, the CoE and INEGI form part of this group.

Between 2012 and 2014, a project was developed and two large-scale tests were carried out in different countries around the world to confirm its feasibility. This led to the elaboration of a draft, circulated in August 2014 among the UN member countries and finally approved by the UNSC at its 46th session in March 2015, with the UNODC remaining as custodian of the Classification.

The CoE played an important role in this process, as was expressly recognised in the final document of the Classification. This was initially translated into all the official languages of the UN. The CoE and INEGI were responsible for the preparation of the Spanish version, which required both the linguistic and legal differences in the terminology of crimes between Spanish-speaking countries to be taken into account. Since its publication, the CoE has also been responsible for its dissemination and analysis, as well as for promoting its application in Latin America and the Caribbean.

The Manual on Corruption Surveys was developed by UNODC in partnership with the United Nations Development Programme (UNDP) and seeks to develop a comprehensive guide to measuring corruption by establishing guidelines that cover all stages for this objective, ranging from planning, collection, analysis and dissemination of information.

A large number of international organisations, as well as prominent academics and officials from several NSOs participated in its elaboration, including the OECD, the European Commission, Transparency International, the World Bank (WB), the statistical offices of Italy, Mexico (INEGI), Indonesia and Cape Verde, not to mention prominent academics such as James Lynch from the University of Maryland and Marcelo Aebi from the University

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66 Ibid., p. 3.
of Lausanne. The CoE received a special mention for its technical support, organisation of work and publication of the Manual. The CoE is included with UNODC and UNDP in the suggested citation of the Manual.67

The CoE became a tool to support two initiatives presented by INEGI and UNODC at the UN.

The other joint INEGI-UNODC initiative before the UN was the proposal of a second Road Map in 2017, this time to improve drug statistics with the objectives of optimising and coordinating the collection of information, research and analysis of the drug problem. This initiative is part of a support instrument for the discussion on the international drug strategy that took place at the Special Session of the UN General Assembly in April 2016 on the World Drug Problem (UNGASS 2016).68

This Road Map was unanimously adopted by the UN Statistical Commission (UNSC) and the UN Commission on Narcotic Drugs (CND).

Its activities began with the creation of a group of international experts to integrate suggestions for the programme to be followed. The Institute is represented by Óscar Jaimes, the current Director General of Government Statistics, Public Security and Justice. Among its first results is the revision and improvement of the Annual Report Questionnaire (ARQ) on drug statistics that the UNODC is carrying out with Member States.69


Between 2013 and 2014, INEGI participated in several of the international expert groups convened by the UN for the sessions of the so-called *Open Working Group* that designed the objectives and goals for measuring the issues related to the rule of law as part of what would become the Sustainable Development Goals (SDGs) of *Agenda 2030*, in particular *Goal 16 - Peace, Justice and Solid Institutions*.70

UNODC is the international agency responsible for a total of 17 indicators related mainly to *Goal 16* and *Goal 5 (Gender Equality)* on targets such as reducing violence and homicide rates; ending child abuse, exploitation, trafficking and all forms of violence and torture; reducing organised crime and corruption; and access to justice. The CoE supports UNODC and INEGI in monitoring and promoting these indicators.

Although its original mandate referred to the Latin American and Caribbean region, the reality is that the CoE, being at that time globally unique in its field, was open to all countries of the world both in its programmes and research stays, where it has received 53 practitioners and experts from 13 countries (including Canada, France, Germany, Italy, Lithuania, Poland, Spain, USA, etc.), as well as in its conferences and other activities.

In August 2019, UNODC, in partnership with the Korean Bureau of Statistics, opened a similar centre of excellence in South Korea to cover the Asia-Pacific region, the second such centre for government information, public safety, victimisation and justice in the world.

**THE CURRENT SITUATION**

SNIGSPIJ is entering the second decade of the 21st century with a comprehensive and extensive programme of producing information on its issues through administrative records, surveys and

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government censuses. It is developing new programmes on subjects of interest to society; in particular, in 2019 it carried out a pilot survey on drug use that is expected to eventually become a regular operation for measuring the situation in this area, particularly complex due to its sensitivity and difficulty in obtaining adequate responses.

Its programmes and the information generated are used as a reference point both technically and politically, which can be very sensitive because of the issues it deals with and in circumstances where crime has increased significantly over at least two six-year presidential terms and does not seem to be decreasing in the immediate future. INEGI has taken particular care, and in strict adherence to its autonomy, to coordinate with all the authorities of the three spheres of government, whether for the joint production of information, especially in the case of administrative records and government censuses, or to explain the basis of its surveys and the usefulness of all the information for the state units themselves.71

Mario Palma’s second term as Vice-President ended in 2018. Adrián Franco took over as Vice-President in charge of the Subsystem in January 2019, while Óscar Jaimes became Director General of Government, Public Security and Justice Statistics.

9.4. Prices change location

On May 18, 1993 an initiative of the Federal Executive was presented to the Chamber of Deputies of the Congress of the Union to give the Bank of Mexico (Banxico) constitutional autonomy with a clear

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71 On one occasion, in a casual interview, a governor of a northern state rejected the data published by INEGI on homicides in his state, a topic that was extinguished when it was clarified that the information had been provided to the Institute by the authorities of that state. On another occasion, a high-level federal official made a phone call to express his displeasure with the recently published crime figures, which merited a response in the same vein, as these indicated an increase in the prevalence of crime that could not in any way be seen as positive; given this coincidence, the issue was no longer insisted upon, so this person can also remain anonymous for the purposes of this book.
mandate to ensure the stability of the purchasing power of the national currency, in addition to other functions, such as issuing banknotes and minting money, as well as regulating credit.

The explanatory preamble of the initiative points to the pace of inflation as a measure of its performance. It also recognises that it would not be appropriate for statistics reflecting prices to be kept by the same central bank (which had been doing so since 1968), and therefore indicates that they should be entrusted to INEGI, a deconcentrated body of the APF with technical autonomy."

The reform would enter into force on August 20, 1993, amending Article 28 of the Constitution to read: “The State shall have a central bank which shall be autonomous in the exercise of its functions and in its administration. Its primary objective shall be to ensure the stability of the purchasing power of the national currency, thereby strengthening the State’s role as a leader in national development...”

The Law on the Bank of Mexico, which regulates Article 28 of the Constitution, was submitted to the Congress of the Union on December 3, 1993 and entered into force on April 10, 1994.

This reform, which is part of the democratic development of balances and equilibriums between the country’s political powers, produces a substantial change in the Mexican political paradigm and will inaugurate the creation of autonomous constitutional bodies (one of them, INEGI) which, although they do not obey a comprehensive plan and each one will originate

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72 Crónica Parlamentaria, “Decreto por el que se reforman los artículos 28, 73 y 123 de la Constitución Política de los Estados Unidos Mexicanos, presentada por el Ejecutivo Federal el martes 18 de mayo de 1993”, Cámara de Diputados.

73 Ibíd., p. 6.
from different legal statutes, have the common denominator of separating various functions from the Federal Executive.

The explanatory preamble points to a contradiction or potential conflict of interest in the Bank’s measuring of its own performance. However, the possibility that a body (INEGI), albeit technically autonomous, belonging hierarchically to the Federal Executive makes this measurement, opens the door to the argument of another contradiction in the sense that the now autonomous Banxico is measured by the power from which it became independent.

The clear solution to this conundrum was obviously the complete (constitutional) autonomy of INEGI. But this, as we have seen, was not guaranteed at that time. Banxico would continue to measure inflation and produce price indices until the legal changes that would lead to the autonomy of the Institute in 2006 (reform of Article 26 of the Constitution) and 2008 (approval of the LSNIEG) established the conditions for its transfer to the latter.

As we mentioned at the beginning of this chapter, Article 59 of the LSNIEG states that one of the exclusive powers of INEGI, along with carrying out national censuses and integrating national accounts, is to draw up the Consumer Price Index (CPI) and the Producer Price Index (PPI), an attribution which, in accordance with the first transitional article, will come into force three years after the publication of this law, i.e. on July 16, 2011.

The LSNIEG also stipulated that an INEGI-Banxico working group should be set up within 10 working days of its entry into force to plan the implementation of the transfer, so on July 28, 2008, although the Governing Board had not yet been appointed, this group was started.

The provisions of the LSNIEG were supplemented by amendments to Articles 20 and 20 bis of the Federal Fiscal Code, published on December 12, 2011, which replaced Banxico with the Institute as the responsible body for the calculation of the CPI.
The working group’s preparations would lead to the signing of three agreements to ensure the successful transfer of the Banxico system to INEGI, which were signed at a working meeting jointly chaired by Agustín Carstens, Governor of Banxico, and Eduardo Sojo, President of the Institute, on October 12, 2010.

These agreements formalised the measures agreed to conclude the transfer on July 15, 2011 and the Institute would take over the indices from the following day. INEGI, in fact, began to apply management procedures in coordination with Banxico from February 1, 2011, incorporating a large number of the private company’s personnel, who had been used by Banxico since 2005 to collect price information, into the Institute’s structure.

In practice, the entire operation was transferred with the systems and computer programmes for the calculating of indices, as well as their licences, which were provided by Banxico to INEGI. The latter, for its part and in accordance with the agreements, guaranteed Banxico real-time access to the methodology, database, information and procedure for calculating the indices in order
to support its monetary policy decisions from July 15, 2011. The Institute acquired computer equipment and software to support the databases transferred to it by the Bank.

Thus, to the complete satisfaction of both parties, on July 16, 2011 INEGI assumed sole responsibility for the production of indices on the date indicated by the *LSNIEG*.\(^\text{74}\)

The two national price indices referred to were integrated into INEGI’s Work Programme which, in this way, completed the universe of information programmes that are internationally recommended by the United Nations Statistics Division (UNSD) to be entrusted to national statistical offices and which in various countries of the world are carried out by central banks.

The CPI aims to estimate the evolution of the prices of goods and services consumed by households by observing the prices at which consumers purchase them. It has become one of the main indicators of economic performance, as it provides a measure of the country’s general inflation.

The PPI, on the other hand, measures changes in the prices of goods and services produced in the country for domestic consumption and export from the prices at which the producer sells them to his first buyer. It therefore estimates supply-side inflation, which contrasts with the measurement of the CPI, which calculates it on the demand (consumption) side. It is an index of short-term infla-

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\(^{74}\) INEGI-Banco de México, “Convenio de colaboración que celebran, por una parte, el Instituto Nacional de Estadística y Geografía [...], representado en este acto por su presidente, Eduardo Sojo Garza Aldape y, por la otra, el Banco de México, representado por su gobernador, Agustín Guillermo Carstens Carstens…”, Mexico, October 12, 2010. // INEGI-Banco de México, “Convenio para realizar el levantamiento de información para la elaboración de los índices de precios (INPC e INPP), que celebran, por una parte, el Banco de México [...] y por la otra, el Instituto Nacional de Estadística y Geografía…”, Mexico, October 12, 2010. // INEGI-Banco de México, “Contrato de licencia de uso no exclusiva e intransferible que celebra, por una parte, el Banco de México [...] y por la otra, el Instituto Nacional de Estadística y Geografía…”, Mexico, October 12, 2010. // INEGI-Banco de México, “Convenio modificatorio al contrato de licencia de uso no exclusiva e intransferible que celebra, por una parte, el Banco de México [...] y por la otra, el Instituto Nacional de Estadística y Geografía…”, Mexico, July 14, 2011.
tionary trends, as it allows the economic sectors, where the inflationary process originates, to be identified in a timely manner and to visualise how it spreads throughout the production chain.

The importance of these indices is crucial for the economy, as they measure the real price behaviour of products and services. They are also used as deflators, as they are used to calculate the nominal or current values of the SCNM in real terms. In addition to its use as a measure of general inflation, the CPI is used as a determinant of the value of the Investment Unit (UDI), a factor in the updating of tax credits; it is also helpful in determining wage increases, pension amounts and social security benefits; as well as in the design and evaluation of monetary and fiscal policies aimed at maintaining purchasing power stability and sound public finances.75

The PPI is also used to index legal contracts (public and private); to calculate other measures of inflation, such as the Final Expenditure Price Index; and to monitor the national economy, an indicator required by international organisations such as the International Monetary Fund (IMF), Eurostat, the OECD and the European Central Bank.76

The first challenge that INEGI faced was to replicate, in all its stages, the measurement and elaboration of the indices as it had been done by Banxico. By becoming the predominant user of this information, Banxico would ultimately endorse the transfer process. Once this had been achieved, the analysis of how to develop this programme would be carried out so that it would be in a position to adopt the necessary improvements that a dynamic situation of this type always requires at some point in the future.

A first step in this direction was the direct hiring, as mentioned above, not only of Banxico’s executives but also of the staff in charge of quotations surveys. This derived from the institutional

policy related to compliance with the Institute’s obligations for the production of information, as INEGI carries out its functions directly with its own staff at all stages, which includes supervising and auditing compliance with both methodological principles and confidentiality.

In this regard, from February 2011, 187 places were created at the Institute to constitute the Deputy General Directorate of Price Indices, where Donaciano Quintero, originally from Banxico, was put in charge.

In order to keep the product baskets (called basic in the case of the CPI) used as a reference for the integration of the indices up to date, the weighting given to a product in relation to its importance in the economy is constantly reviewed in INEGI to identify changes in consumption patterns. This has led to a change in the base reference year of the indices: for the CPI from 2010 to the second half of July 2018, and for the PPI from June 2012 to July 2019.

The sources for the weighting are, in the case of the CPI, the National Survey of Household Expenditure (ENGASTO) in its 2012 and 2013 editions in combination with the National Survey of Household Income and Expenditure (ENIGH) 2014; and for the PPI, the 2013 Economic Censuses, the SCNM 2013-2017, the Supply and Utilisation Table 2013-2017, the Input-Output Matrix 2013 and other administrative records.

Both indices were certified under the international standard ISO 9001:2008 and re-certified in 2014, currently complying with ISO 9001:2015/NMX-CC-9001-IMNC-2015 RSCC 1069 Certificate.77

An important innovation added from the last base year updates of the indices was the use of probability sampling to improve the rigour of the surveys. In the case of the CPI, it is now used in 248 of the 299 consumption concepts or generic products that are

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measured, while the remaining 51 are obtained by non-probability samples from directories produced by INEGI.

As for the PPI, probability sampling is already used in 84 out of 560 generics. The sampling framework developed from the universe of establishments that the Institute has as a result of the Economic Censuses and other programmes (such as the Mexican Statistical Business Register) makes this instrument readily available, which in turn provides a better estimate of prices at the national level.

In the case of the CPI, INEGI increased the number of cities where prices are quoted in a sample of establishments from 46 to 55 as of 2018. These correspond to 73.6% of the country’s population. In addition, towns with less than 15,000 inhabitants were included in the weighting structure. As such, the CPI no longer has just an urban character, but serves as a truly national index.

Weekly, fortnightly, monthly and half-yearly price quotations are made which vary according to the generic type; for example: food, drinks and tobacco are weekly; restaurants, internet, books and cars, fortnightly; schools, monthly; and house/room rent, half-yearly; to add up to approximately 328 thousand monthly price quotations.

The CPI is published on the 10th and 25th of each month (or the previous working day if these dates are Saturday, Sunday or a holiday) in the Official Gazette of the Federation (DOF). On the 25th the calculation of the first fortnight of the same month is presented and on the 10th the calculation of the second fortnight of the previous month is disseminated.

In the case of the new PPI base year, in addition to the introduction of probability sampling, it was updated based on the evolu-

tion of the productive sector structure from June 2012 (reference period of the previous index) to July 2019, when the NAICS 2013 is already in use. The PPI is published monthly by the 9th of each month on the INEGI website.

**Purchasing Power Parities (PPP)**

Since 1996, INEGI has participated in the joint Eurostat-OECD programme on Purchasing Power Parities, which is at the forefront of research, methodologies and statistical procedures in the field of international comparisons. This requires both the System of National Accounts - which provides a common conceptual framework by which nations measure their economies in the same way - and the comparison of prices of the same goods or services in different countries.

By its very nature, it requires international coordination efforts, which makes it one of the most complex projects carried out by the international statistical community. The programme works with more than 200 countries and Mexico participates in the Latin American and Caribbean region.

It uses a basket of about 3,000 products, in relation to the prices at which the goods and services are purchased, using the Gross Domestic Product (GDP) per object of expenditure as a weighting factor. The results of the comparisons are published through the OECD databases. INEGI presents six annual series at the level of GDP taken directly from the OECD databases:

- GDP in national currency at current prices.
- GDP in US dollars at current PPPs.
- Annual Purchasing Power Parities GDP.
- Comparative price levels (Price Level Index).

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9.5. The Census of Schools, Teachers and Students of Basic and Special Education (CEMABE)

In 2013, INEGI carried out the CEMABE, a census exercise unprecedented both nationally and even internationally. The need to carry out this exercise was the result of the Education Reform undertaken, along with others, by the administration of President Enrique Peña Nieto within the framework of the so-called Pact for Mexico which he had agreed with the main opposition parties since before the beginning of his administration.

The reform was announced by the President in his inaugural speech on December 1, 2012: “The time has come for an educational reform. A nation bases development on education...” In the same speech he instructed the Minister of Public Education, Emilio Chuayffet, “... to ask INEGI to conduct a census of schools, teachers and students. This information, which is not available today, will be the database needed to achieve a more efficient and transparent operation of the country’s education system...”

Indeed, the country did not have this information, at least not reliably, there was data, but clearly data with serious deficiencies. In fact, the subject was taboo within the Ministry of Education (SEP), where it was actually considered a no-go area because of the sensitivity of the National Education Workers’ Union (SNTE) and, not to mention, the National Coordination of Education Workers (CNTE), a militant breakaway from the SNTE with strongholds in several states of the Republic.

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81 INEGI, “Paridades de Poder de Compra (PPC)”, Programas.
The fact was that the government and the country did not know the number of teachers or what they were really doing, among various other missing data. The anticipated opposition to the Census was not long in coming, although this did not prevent it from being carried out extensively in most schools and states, as we will see when analysing its results.

The government, aware of the risks of obtaining the reports with the required data internally, resorted to an autonomous institution specialised in statistics to go directly to the schools and workplaces of the National Education System (SEN) to collect the information in situ, contrasting it with the previously existing information. In this way, the Census would, in part, acquire the appearance of a census/audit, as INEGI staff will go to each of the facilities with the data recorded by the SEP of teachers and students, and initially corroborate its existence, as well as adding the unmeasured information as detected in the reports.

The constitutional reform, which sought to improve the quality of education and strengthen the State’s steering role in determining curricula, was published in the DOF on February 26, 2013 after obtaining the approval of the Congress of the Union and most of the state congresses.83 However, since December 2012, INEGI, in coordination with the SEP, had begun preparations for the Census which, in order to be effective in contributing to the country’s new education policies, had to be carried out as soon as possible.

CEMABE, together with the programmes described in Chapter 6, belongs to the group of projects that go beyond the traditional scope of an information production office, not in their original work programme, and as with similar cases, that respond to situations for various unforeseen causes and need to be carried out in a restricted time frame.

83 Secretaría de Gobernación, “ Decreto por el que se reforman los artículos 3.° en sus fracciones III, VII y VIII; y 73, fracción XXV, y se adiciona un párrafo tercero, un inciso d) al párrafo segundo de la fracción II y una fracción IX al artículo 3.° de la Constitución Política de los Estados Unidos Mexicanos”, Diario Oficial de la Federación, February 26, 2013.
The undertaking of CEMABE took place from September 26 to December 13, 2013. In the prior months, it was necessary to carry out the planning process of the census operation, obtain the required budget, hire and train staff and prepare (or acquire, if needed) the necessary equipment and infrastructure.

To this end, INEGI signed a contract with the Autonomous University of Aguascalientes on May 22, 2013 to develop the conceptual framework for CEMABE.

On May 6, the general collaboration agreement was signed with the SEP to comply with the constitutional provision to create the Educational Information and Management System (SIGED), for which CEMABE had to be undertaken. The information resulting from this exercise would be provided, by INEGI to the SEP, in its entirety, in a disaggregated and nominative manner or, where appropriate, with the aggregation determined by the SEP so that the SEN could operate.

In this case, as we can see, due to the characteristics of the information requirements to implement the Education Reform, an exception was foreseen, based on the constitutional reform, to the confidentiality requirements in the presentation of information to the SEP, leaving it to its discretion to publish nominal data due to the requirements of its programmes.84

CEMABE’s objective was to produce the basic information to create the Education Information and Management System as a support for the National Education System (SEN), which would be fed and kept up to date with the reports and administrative records generated by the SEN itself, since it would not be practical, due to the complexity and costs of the operation, to update the information through census

es, but rather through administrative records. The intention was for this operation to be unique and to trigger the SIGED.

Census support committees were established at the federal and state levels. The National Committee was chaired by SEP’s Deputy Minister for Planning, Enrique del Val, in coordination with the Director General of Sociodemographic Statistics of INEGI, Miguel Cervera. The state committees were presided over by the Minister of Education of each state and on the part of the Institute they were made up of the states’ coordinators, whose mission was to facilitate the fieldwork operations at state and municipal levels, for which measures had to be adopted to minimise the risks of any kind that might arise, as well as to support the reception and entry of interviewers into the schools. Elsa Resano, responsible for the 2010 Population and Housing Census, took over the leadership of CEMABE.

Educational workplaces, comprising all public and private schools for basic and special education; teaching, administrative and service staff; as well as students were identified as units of study. CEMABE’s objectives were to find out the number of teachers and students in the educational work centres, their socio-demographic characteristics, the educational profile of the staff, training needs, functions, seniority in the educational system, operating and management conditions of the centres, as well as the physical infrastructure of the centres; regarding the students indigenous language and special needs status related to disability, scholarships and support would be identified, among other characteristics.

The interviews, supervision and follow-up work were carried out by 17,281 people, of whom 13,561 were surveyors dedicated to visiting and collecting information from workplaces. Only staff having completed high school and higher education were hired for this purpose and given special two-week training. 16,667 tablets were purchased and preloaded with the names of the workplace staff and students. This information came from SEP reports on Format 911 and the National Register of Students, Teachers and Schools (RNAME), as well as from state administrative records.
This was the information to initiate what was called a roll call of teachers and students in each workplace. The first step was to check the data with the people present and, with the support of the head teacher and other responsible administrative staff members, to confirm the number of active working teachers, as well as the students attending the sites. The interviewers asked the teachers for their name, class code, grade and the number of hours they taught.

In addition, the school authorities were asked about the characteristics of the building, which was photographed with the purpose of integrating the Educational Atlas that was prepared by geo-referencing the location of each campus, including their respective photographs. In addition, information was collected on the characteristics of the management of the work centre, whether there was more than one school, whether operating on daytime, evening or night-time schedules, etc.

In this way, both the public and the authorities would have access to data by school at the national level, information that had not previously been available and which included both the operation of the schools and the socio-demographic aspects of teachers and students as well as the physical infrastructure of the sites.

An electronic questionnaire was applied with questions (145) about the buildings, characteristics of the workplace (168), roll call of staff (13) and students (6); and two more were included on paper, one for the staff of the workplace (55) and another for the students (36).

A total of 61,989 localities in 2,457 municipalities and delegations were visited. The final results were presented in May 2014 at a joint press conference held by Eduardo Sojo and Emilio Chuayffet, at which the results were presented both to SEP and the general public.

Of the 261,631 operating centres identified by the educational authorities, 236,973 (90.6%) were censused by INEGI, with 24,658 (9.4% of the total) missing. Of these, the vast majority (24,164) refused
to participate in the census, 426 were not located and in 68 there were operational contingencies of various kinds that prevented visits.

Most of the refusals were concentrated in three states: Chiapas (41%), Oaxaca (27.3%) and Michoacán (27.2%), while in the rest of the entities, the non-reporting rate was 0.4%, with 19 (of 32) achieving complete participation.\footnote{INEGI, “Censo de Escuelas, Maestros y Alumnos de Educación Básica y Especial. Atlas Educativo”, tabulados.}

The wealth of information produced gave the country a picture of education at both the macro and individual levels of the vast majority of the country’s schools, of their various needs and of the situation of teachers and students in each of them.

Although conclusions on some of this data could have been previously reached, it does not compare with the accuracy of the evidence obtained in the field. Some were truly shocking and cause
for concern to the public and, above all, to the country’s policy makers in this area. The basic tabulations can be consulted on the Educational Atlas page (http://cemabe.inegi.org.mx/). Below are some of the results, especially those that may have had an effect on the subsequent handling of the information.

Of 207,682 basic education schools censused (this figure refers only to preschool, primary, secondary and multi-schools and does not include other educational workplaces), 86.4% were public and 13.6% private. In terms of infrastructure, more than 10% of public schools had no electricity, only 69% had access to drinking water and 51.6% to drainage. The situation in terms of teaching equipment was worrying, to say the least, as only 85.3% of public schools had desks in all their classrooms, 79.7% had desks for all their teachers and 9.1% had a deficit of blackboards.

The heterogeneity of the country was reflected in the number of schools built with precarious materials, which were concentrated in the states of Chiapas, Oaxaca, Guerrero and Veracruz, while internet access, which was 94.8% in public schools in Mexico City, was less than 7% in Oaxaca and Chiapas.86

However, perhaps the most shocking data for the public was that referring to the staff located in the various workplaces, as serious discrepancies were detected with the information recorded by the SEP. Out of 2,247,279 jobs assigned to the registered centres, the people who occupied them during the census were found in 1,949,105 cases (86.7%); of these, 36,046 refused to fill in the questionnaire.

For the remaining 298,174 jobs, people were not found in the workplace where they were supposed to be. Of these, 113,259 (38%) were located by INEGI itself working in other educational work centres. With regard to the 184,915 missing persons, through the information presented by directors and other administrative or teaching staff of the centres themselves, it was possible to attribute, as causes

86 Idem.
of their absence, in 30,695 cases to leave and commissions, and in 114,998, to retirement, resignation, pension or death. For 39,222, no information could be obtained either from the educational authorities or from the parents themselves.

It is important to note that this data came only from the schools in which CEMABE was conducted, since in cases where they refused to answer, it was not possible to obtain the data for these variables.

The information with the main results of CEMABE was widely disseminated and commented on in the media and analysed by academics and specialists.

INEGI published the basic tabulations on its web page together with a general presentation of CEMABE and gave the SEP, as agreed in the legal instruments, the information generated in a disaggregated and nominative way for its analysis and eventual use in its educational public policies.

With regard to the information on the jobs where the people who occupied them were not located during the different visits of the Institute’s staff to the schools, it was up to SEP to duly carry out a review. In a note published on January 19, 2015 across various media outlets, reference was made to the press interview of several SEP officials, in which it was reported that of the 298,174 posts that INEGI counted their holders as not being located in the workplaces, 261,927 had been identified as belonging to them and that by that date only 4,205 remained to be located. This tracking and identification process was conducted by federal and state education authorities without the participation of the Institute. Although total numbers were presented, in the research for this book it was not


possible to find public information on how these individuals were identified, where they were located, the process of clarifying these cases, and the determinations regarding payments.90

At the time, CEMABE was a great challenge for INEGI, carried out in an unprecedented period of time for a census exercise that produced data of high value for public policy in education, as it allowed for the correction of previous deficient information, as well as the contribution of new information to identify needs at the macro level, but also individually by school. It also provided an overview of the employment situation in the education system and contributed indispensable inputs for public policy in education undertaken in subsequent years. The Educational Atlas that was produced from this information allows the country’s schools to be geo-referenced with the statistical information collected from each of them, visualising the infrastructure conditions of the schools through photographs.91

The Higher Secondary Education Census (high schools and technical schools) planned in the Education Reform to complement the information on basic education was not carried out due to budget restrictions.

9.6. Traditional activities

THE POPULATION AND HOUSING CENSUS OF 2010

The planning and preparation of the 2010 census operation had been resumed and intensified since the beginning of the auton-


omous INEGI administration in 2009. The team responsible for the Census was integrated into the Directorate General for Socio-demographic Statistics (Miguel Cervera) assisted by Alfonso Paz, who would coordinate with the territorial structure (regional directorates and state coordination), in turn led by Norberto Roque to carry out this census project.

In May and September 2009, the so-called workshops on the 2010 Population and Housing Census were held in collaboration with COLMEX, the Mexican Society of Demography and the Institute of Social Research of UNAM. Proposals for the thematic content of the basic and extended questionnaires were received and discussed, and the field tests that had been previously carried out to test the functionality of the proposals were presented. The 2010 Census page was also established on INEGI’s website and made available to the general population.

In order to guarantee the spatial coverage of the Census in the National Geostatistical Framework, the periphery of urban localities with more than 50,000 inhabitants, urban developments throughout the country, as well as the maps of rural localities were updated, resulting in a total of 728,788 geographical products. In October 2009, the training of the different figures in the operational structure began with a workshop for deputy state directors of statistics and regional training instructors. To this end, in November, the workshop on the Structuring of Areas of Operational Responsibility was held for the enumeration coordinators of the entire country, where the operational strategy was established. 8,200 classrooms were arranged for training, 8,500 offices were set up for fieldwork operations and 33.9 million questionnaires were printed.

In the same month, the start-up meeting of the Census was held with regional directors and state coordinators, where the results of the field and thematic tests were reviewed, and the final general strategy was established.

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93 Secretaría de Hacienda y Crédito Público, Cuenta pública 2009.
For the first time, the agreement to inform the population and request the participation of government bodies in the Population and Housing Census, traditionally issued by the President of the Republic, will be issued by the Governing Board on the basis of the constitutional autonomy of INEGI. This agreement was published in the DOF on January 29, 2010.94

The Census was held from May 31 to June 25, 2010, with space from June 28 to July 2 for the recovery of data on pending housing. For the first time, a post-census survey was held from July 26 to August 6 to measure census coverage through the replication of the fieldwork process. Coverage of 98.7% was obtained nationally.95 The Census referred to 00:00 hours on June 12 of the same year.

A total of 182,347 people participated, of whom 109,137 were interviewers,96 and a verification survey was carried out simultaneously with the field operation to monitor the results and progress of the operation on an ongoing basis.

Two questionnaires were used, basic and extended, the former with 29 questions and the latter with 75. The first one covered age, sex, kinship, place of birth and residence in 2005, health services, religion, disability, indigenous language, education, marital status, economic activities and fertility; in relation to housing, type of flat, number of rooms, availability of electricity, water, toilet and drainage, household appliances and media.

The extended questionnaire was applied to 2.9 million households selected with probabilistic criteria in the 2,456 municipalities existing in that year and in towns of 50,000 or more inhabitants, as well as to the entire population in municipalities with less than


1,100 inhabitable dwellings and in the 125 with the lowest Human Development Index.\(^{97}\) In addition to the questions covered in the basic questionnaire, the extended version delved into the contents of health, disability, ethnicity, education, national and international migration, economic characteristics, fertility and infant mortality; with respect to housing, characteristics of construction, structure, equipment, acquisition and tenure.

In all cases, up to three visits to the households were made to complete the interview. 35,617,724 homes were identified and classified, of which 28.6 million were considered inhabited, while the rest were for temporary use or uninhabited.\(^ {98}\)

The estimated population was 112,336,538 (11th in world population). Preliminary results were presented on November 25, 2010 and final results on March 3, 2011.\(^ {99}\)

\(^{97}\) INEGI, Diseño de la muestra censal 2010 (Mexico: INEGI, 2011), p. 3.

\(^{98}\) INEGI, “Principales resultados”. Censo de Población y Vivienda 2010, Programas.

\(^{99}\) Idem.
2014 ECONOMIC CENSUSES

In 2013, work began on the preparation of the operation, acquisition of equipment and verification of large establishments, as well as the design of the dissemination campaign.

Although all INEGI census exercises have traditionally included consultation with users, experts and academics, for the first time, in the case of the Economic Censuses, a formal exercise will be carried out in accordance with the regulations of the LSNIEG (Article 88), as preparations for the 2009 operation began before it came into force. The census methodology was made available to all citizens via the Internet so that anyone interested could submit opinions and suggestions. This public consultation was conducted from March 1 to 31, 2013. In addition, face-to-face meetings were held with academic, governmental and business institutions.

From May 12 to 15, 2013 the pilot test was carried out in six cities (Chihuahua, Cuernavaca, Guadalajara, Puebla, Tijuana and Tuxtla Gutiérrez), which led to a second test only in Guadalajara from September 8 to 12 to verify the changes made to the computer systems resulting from the first test.

In October, the results of the public consultation were published, together with the reasons for accepting or not accepting the various recommendations. A total of 112 of the 214 recommendations received were included.100

The aim of the 2014 Economic Censuses was to obtain basic and updated statistical information for 2013 (although it also captures companies that started activities in 2014) on establishments producing goods, marketing goods and providing services. This information allowed DENUE, the framework for the National Economic Surveys programme and other special economic studies carried out by INEGI, to be completely updated.

The structure of the NAICS 2013 was used, consisting of 20 sectors of economic activities, 94 subsectors, 303 branches, 614 sub-branches and 1,059 activity classes, of which 981 were part of the objectives of this exercise. Only fixed and semi-fixed units (non-ambulatory or dismantled on a daily basis) were considered, and global value chains, the environment, credit and bank accounts, science, technology and innovation, non-incorporated personnel and employers’ social security contributions were included in the new or extended topic.\textsuperscript{101}

The census operation took place from February 4 to July 31, 2014 with the participation of more than 32,000 people who used 18,500 mobile computing devices equipped with INEGI’s digitised cartography. This made it possible to automatically assign the reference keys to each establishment and locate a point on the street and block where they are located, in addition to recording geographical updates and the direction of the streets, information which directly feeds the geographical display of DENUE.\textsuperscript{102}

The vast majority of interviews were conducted using these software applications in what was, in effect, a portable census. The former use of the paper questionnaire decreased to only 1% of the economic units in this census, in particular it was used for large enterprises that were left to fill in the questionnaire because of the complexity and amount of information that needed to be collected.

Likewise, the number of establishments and companies that responded electronically increased, reaching 2% of the total number of interviewees. There was also an increase in the case of the largest businesses in the country that used the spreadsheet questionnaire, allowing them to record and display information from all the establishments that shared the same business name (1.6% of the total number of economic units).\textsuperscript{103}

\begin{thebibliography}{99}
\bibitem{101} Ibid., p. 16.
\bibitem{102} Ibid., p. 23.
\bibitem{103} Ibid., p. 24.
\end{thebibliography}
The census operation was carried out through complete coverage of the national territory. Only in the case of manufacturing, commerce and services was a sample used for rural areas that did not have industrial or touristic parks and corridors or important establishments located there.  

The 2014 Economic Censuses recorded 5,654,014 establishments, 1.9% more than in 2009, of which 5,250,286 were active in 2013 and 403,728 started activities in 2014. The number of staff employed was 29,642,421.  

The preliminary results were ready 17 weeks after the end of the operation in December 2014 and the final results were presented on July 28, 2015 at the Museum of Anthropology in CDMX in the presence of 270 officials, academics and representatives of the private sector, to whom the products resulting from the Economic Census were delivered. The national data was published in Spanish and English for the first time.

**2015 INTERCENSAL SURVEY**

In 1995, as we have seen, INEGI carried out its first intercensal measurement to update the socio-demographic information halfway through the period between two population and housing censuses, which consisted of an enumeration or count in all the households across the country with a reduced questionnaire (in relation to the censuses) of questions on people and households, which was complemented with an extended questionnaire on 2,500 homes per state.

In 2005, despite facing budget restrictions that even caused uncertainty about the actual conducting of this measurement, the count was finally carried out using a single reduced questionnaire for the entire population and the accompanying survey was undertaken.

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104 Ibid., p. 21.
In 2015, a decision was made to carry out a broad-coverage intercensal survey, seeking to interview around 6 million households in order to obtain information at the national level, by state and municipality, as well as for each of the towns of 50,000 or more inhabitants without carrying out a general count of the entire population.

In addition to the importance of the information collected for measuring the progress of public policy plans and programmes and for academic research and planning by the private sector and civil society organisations, the fact that 2015 was a reference date for the Millennium Development Goals agreed by countries at the UN, which from that year onwards were replaced by the SDGs and the Agenda 2030, was also a factor.\(^\text{106}\)

In 2014, three thematic tests were carried out in different municipalities of the country which included the so-called Afro-descendant test to assess self-identification in areas with a population with this characteristic. From April to June, public consultation on the methodology was carried out through the INEGI website and 43 meetings with users. The National Geostatistical Framework was also updated and a survey on the urban environment and the characteristics of the localities was carried out.\(^\text{107}\)

From October to December 2014 the training of the various levels of the operational structure began. The survey was carried out from March 2 to 27, 2015 by almost 42,000 interviewers,\(^\text{108}\) who visited 7,853,702 homes, of which 5,933,904 were inhabited (the rest were uninhabited or for temporary use). The total estimated population was 119,938,473 inhabitants.\(^\text{109}\)

The final results were published on December 8, 2015 and, in response to a request from the National Commission for the


\(^{107}\) Secretaría de Hacienda y Crédito Público, Cuenta pública 2014 (México: SHCP, 2015), Tomo VI. Órganos Autónomos, INEGI.

\(^{108}\) Secretaría de Hacienda y Crédito Público, Cuenta pública 2015 (México: SHCP, 2016), Tomo VI. Órganos Autónomos, INEGI.

Development of Indigenous Peoples, the *Atlas of the Indigenous Speaking Population in Mexico* was presented on December 16.\(^\text{110}\)

**AGRICULTURAL MEASUREMENTS**

In 2012, INEGI decided to establish an agricultural information system that would integrate both data from the agricultural censuses and from continuous surveys and geographic information. With this objective in mind, the National Agricultural Survey was initiated in that year, whose predecessor had been the 1988 National Agricultural and Ejido Land Survey.

The purpose of this new programme was to obtain basic information on the production of the country’s main agricultural, livestock and forestry species. This survey would be carried out again in 2014 and 2017, the latter the year in which the Agricultural Census which could not be done due to budget restrictions was originally scheduled. For this reason, a decision was taken to obtain as much information as possible by carrying out this survey. Together with the updating of the Agricultural Census Framework (ACF) 2016, originally planned as an input for the 2017 Census, these surveys constitute an important body of information available to the public.

The 2017 survey covered 34 products equivalent to over 80% of the country’s agricultural sector GDP and had a sample of 101,828 production units. It presents data at the national level and for the main states, on land sown and harvested, agricultural and livestock production, livestock stocks, as well as information on technology used, credit and insurance, labour force and age of producers and the problems they face in carrying out their activities. In the case of eight products not included in the 34 considered at the national level (pine, resin, tequila agave, maguey mezcalero, guava, pineapple, asparagus and nuts), it does so for the main production entities.\(^\text{111}\)

\(^\text{110}\) Secretaría de Hacienda y Crédito Público, *Cuenta pública 2015*.

The ACF consisted of locating, with its limits, the land with or without agricultural or forestry activity located in rural areas and plots in urban areas throughout the country. Information was collected on location, boundaries, tenure, rights and main activity, main crop and livestock or forestry species; information from the country’s large agricultural producers was also validated to ensure the accuracy of the previously obtained data and the surface area of the lands was verified with digital mapping.112

NEW PROGRAMMES

In addition to continuing with the majority of the extensive body of programmes initiated in previous years, INEGI would resume or launch some others on topics that had not been previously addressed in an effort to meet new user needs.

In 2011 the Retrospective Demographic Survey (EDER) was conducted for the first time, as an annex module to the National Survey of Occupation and Employment (ENOE), with the aim of collecting information on the temporary nature of processes such as migration, education, occupation, nuptiality, fertility and mortality by observing different birth cohorts in their demographic trajectory. The sample size was 3,200 households. This survey was re-run in 2017.113

In the same year the number of satellite accounts increased with those corresponding to health, non-profit institutions and unpaid work; likewise, the publication of the Quarterly Indicator of Tourism Activity began.

In 2012 the National Survey on Financial Inclusion (ENIF) was launched in collaboration with the National Commission for the Protection and Defence of Financial Service Users (CONDUSEF), the SHCP and the National Commission for Banking

and Securities (CNBV), which in turn received contributions from the Working Group on Measurement, Diagnosis and Dissemination of the National Council on Financial Inclusion (CONAIF) with the aim of obtaining information on the use of and access to financial services and products. The sample was 7,000 households and the survey was repeated in 2015 and 2018.\textsuperscript{114}

In the same year, the Survey on Penetration of Open Television in Households (ENPETAH) was carried out, designed jointly with the Federal Commission of Telecommunications (COFETEL) on television equipment and signal in homes. Its sample was 1,000 households in each of nine metropolitan areas and 1,200 for CDMX. It was only held in 2012.\textsuperscript{115}

Also, in 2012, the Survey of Labour and Social Co-responsibility (ELCOS) was carried out in collaboration with INMUJERES with the aim of generating information on households care needs and the participation of members and non-members of the household, determining workloads for women and the relationship, or lack of, with their labour insertion. The sample was 19,850 households. It was a single edition for that year.\textsuperscript{116}

The National Survey of Job Placement for High School Education Graduates (ENILEMS) was carried out in the same year under an agreement with SEP to obtain information on the population aged 18 to 20 who had completed high school education in order to find out about their educational background and their insertion into the labour market. The sample size was 9,255 people. It was only carried out on that single occasion.\textsuperscript{117}

Other national surveys in 2012 were the National Survey of Cultural Consumption of Mexico (ENCCUM) and the National Sur-

\textsuperscript{114} INEGI, “Encuesta Nacional de Inclusión Financiera (ENIF) 2012”, Programas.
\textsuperscript{115} INEGI, “Encuesta Nacional sobre la Penetración de Televisión Abierta en los Hogares (ENPETAH) 2012”, Programas.
\textsuperscript{116} INEGI, “Encuesta Laboral y de Corresponsabilidad Social (ELCOS) 2012”, Programas.
\textsuperscript{117} INEGI, “Encuesta Nacional de Inserción Laboral de los Egresados de la Educación Media Superior (ENILEMS) 2012”, Programas.
survey of Household Expenditure (ENGASTO). The former was carried out on a one-time basis with the support of the National Council for Culture and the Arts (CONACULTA) to obtain information on expenditure by household members in the cultural field. It involved a sample of 14,420 households.\textsuperscript{118}

ENGASTO arose from the need to have a survey that would capture household expenditures throughout the year. The information produced would serve as input for the weighting of products consumed in the CPI for the change of base year and the satellite accounts of national accounts. Its purpose was to obtain data on the distribution of household expenditure and the estimation of consumption in physical quantities of certain goods. The sample size was 70,320 households in 2012 and 71,851 in 2013. It had only these two editions.\textsuperscript{119} From 2016 onwards, the National Survey of Household Income and Expenditure (ENIGH) considers the issue of household expenditure that was previously covered by ENGASTO.

In 2014, the National Household Survey (ENH) will be launched with the aim of providing information on the characteristics of homes, socio-demographic data on household members, occupation, education and perception of their state of health, as well as the availability of information and computer technology (ICT) goods and services in homes. It was conducted until 2017 on an annual basis. Its latest version had a sample size of 64,000 households.\textsuperscript{120}

From this date, the themes of the ENH are taken up again in the following national surveys: on Demographic Dynamics (ENADID), on Consumption of Energy Sources in Private Housing Units (ENCEVI), on Health and Nutrition (ENSANUT) and on Time Use (ENUT).

\textsuperscript{118} INEGI, “Encuesta Nacional de Consumo Cultural de México (ENCCUM) 2012”, Programas.
\textsuperscript{119} INEGI, “Encuesta Nacional de Gastos de los Hogares (ENGASTO) 2012”, Programas.
\textsuperscript{120} INEGI, “Encuesta Nacional de los Hogares (ENH) 2014”, Programas.
The National Housing Survey (ENVI) was carried out with the support of the National Housing Commission (CONAVI), Housing Fund of the Institute of Security and Social Services for State Workers (FOVISSSTE), the National Housing Fund for Workers (INFONAVIT) and the Federal Mortgage Society (SHF). Its aim was to obtain information on expenditure and time in households for self-production, self-construction, extension, repair, maintenance, remodelling and acquisition of the main or second home, as well as the expenditure derived from its use, with a national sample of 29,990 private households.\(^{121}\)

In 2014 the Culture Satellite Account is added and the following year the Housing Satellite Account would also start to be published.

In addition, four new programmes were launched in 2015. The National Survey of Enterprise Financing (ENAFIN) in collaboration with the CNBV, to obtain information on financing sources, use and needs of financial services by businesses. The sample size was 3,927 economic units in total, covering all sizes of enterprises and the construction, manufacturing, trade and non-financial private service sectors. This statistical operation was carried out again in 2018 with a sample of 4,188 economic units.\(^{122}\)

The National Survey on Productivity and Competitiveness of Micro, Small and Medium Enterprises (ENAPROCE) was developed jointly with the National Institute of the Entrepreneur and the National Bank of Foreign Trade to find out the characteristics of the economic activities of this type of business in the country with a sample size of 26,997 economic units. Its second edition was held in 2018 with a sample of 22,188 companies.\(^{123}\)

The National Survey on Availability and Use of Information Technologies in Households (ENDUTIH) aims to obtain informa-

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122 INEGI, “Encuesta Nacional de Financiamiento de las Empresas (ENAFIN) 2015”, Programas
tion on the use of ICT in the home by individuals aged 6 and over. It is carried out annually and for its 2019 edition 24,003 households were visited.124

Finally, in the same year, the Census of Social Assistance Accommodation (CAAS) was conducted, which generated information for the first time on the resident population of the same, the personnel working there, the characteristics of the properties and the services they provide. The fieldwork was based on an integrated directory in collaboration with the National System for the Integral Development of the Family (DIF), the National Institute of Social Development (INDESOL), INMUJERES and the National Shelters Network (RNR). A total of 4,700 shelters were censused in the 32 federal entities.125

In 2017, INEGI, in collaboration with the National Council for the Prevention of Discrimination (CONAPRED), carried out the National Survey on Discrimination (ENADIS), with two previous versions from 2005 - with the Ministry of Social Development (SEDESOL) - and 2010 - with UNAM - to find out the situation regarding discrimination. The sample size was 39,101 households nationwide.126

That same year, the Origin-Destination Survey in Households of the Metropolitan Zone of the Valley of Mexico (EOD) was carried out to find out the volume of the population’s daily mobility and residents’ travel patterns. The EOD took up the exercises carried out in the same area in 1983, 1994 and 2007, as well as those carried out in Puebla (1976 and 1983), Monterrey (1983) and Guadalajara (1985). The sample size was 66,625 households in the 16 delegations of CDMX, 59 urban municipalities in the State of Mexico and one in the state of Hidalgo.127
In November 2017, Banxico transferred the task of conducting the Inbound Tourism (ETI) and Border Travellers (EVF) surveys to INEGI, which respectively capture information from international travellers resident in other countries who visit the country beyond the border zone and from residents in the country who visit other economies beyond the border zone. It is collected monthly and its sample framework is formed from the Monthly Migration Statistics (EMM) of the Migration Policy Unit (UPM) of the Ministry of the Interior (SEGOB), as well as from the statistics on the number of passengers from Airports and Auxiliary Services (ASA) and the Ministry of Communications and Transportation (SCT).128 The EVF’s objective is to study border travellers, whether tourists (who stay overnight) or day-travellers (who do not stay overnight) entering the country by land and remaining on the northern and southern border strips.129

The National Survey on the Consumption of Energy Sources in Private Housing Units (ENCEVI) was first conducted in 2018, in collaboration with the Ministry of Energy (SENER) and the National Commission for Efficient Energy Use (CONUEE), with the aim of understanding consumption patterns of the different energy sources in homes. The sample size was 32,047 private homes.130

In 2018, in collaboration with the Ministry of Health (SSA) and the National Institute of Public Health (INSP), INEGI carried out the survey of the third ENSANUT which continues the tradition started by the SSA in 1986 when the National Health Survey System (SNES) was created. The sample size was 50,000 households for the health aspect and 32,000 for the nutritional. The collection instruments included 18 questionnaires and capillary and venous blood sampling, as well as anthropometric measurements - in the case of the topics corresponding to the questionnaires on lead levels in children and pregnant women -, anthropometry and blood pressure, and blood sample format. They were carried out by a team

129 INEGI, “Encuesta de Viajeros Fronterizos (EVF)”, Programas.
of specialists (nutritionists and nurses) alongside staff trained by INEGI to conduct the interviews, a modality in which the Institute made its first incursion.\textsuperscript{131}

\section*{9.7. The national and international geographical perspective}

With autonomy, the \textit{LSNIEG} establishes the National Subsystem of Geographic and Environmental Information (SNIGMA). The first vice-president of this subsystem, Enrique de Alba, remained in the position until March 2013, when he took over the National Subsystem of Economic Information. He was replaced by Rolando Ocampo, who remained in the SNIGMA until April 2017, when Paloma Merodio took his place.\textsuperscript{132}

The SNIGMA Executive Committee was established on December 5, 2008. The Subsystem would subsequently change its name to reflect the scope of its areas of interest to the National Subsystem for Geographic Information, Environment, Land Planning and Urban Development (SNIGMAOTU) by agreement of the Governing Board on June 14, 2017.

In the little more than a decade since INEGI’s autonomous operation began, geographic activities have seen important developments that have been reflected in the Institute’s various programmes.

From the outset, the subsystem focused on identifying information to structure databases both internally and to systematise external administrative records. With this objective in mind, it was necessary to work closely, through specialised technical committees (STCs), with various information producing administrative

\textsuperscript{131} INEGI, "Encuesta Nacional de Salud y Nutrición (ENSANUT) 2018", Programas.

\textsuperscript{132} As of April 2017, Rolando Ocampo is in charge of the National Subsystem for Economic Information and Enrique de Alba is in charge of the National Subsystem for Socio-demographic Information.
units, as was the case with SENER on issues such as the origin and destination of energy; the monitoring of greenhouse gases with the Ministry of Environment and Natural Resources (SEMARNAT) and information from rural areas together with the Ministry of Agrarian, Land and Urban Development (SEDATU), among others. In addition to the original STCs created in 2009 (Basic Geography; Water; Land Use, Vegetation and Forest Resources; and the Energy Sector), the committees on Emissions, Waste and Hazardous Substances (2010); Climate Change (2010); Cadastral and Registry Information (2010); Regional and Urban Development (2014); and Marine (2017) will soon be added.

In 2008, the aerial-photographic mosaic of the international border in the Rio Bravo region was produced under an agreement with the International Boundary and Water Commission, and in 2009 the 1:250,000 scale Map of the Southern Border was published and georeferencing began in four states for the Programme of Direct Support to the Rural Areas (PROCAMPO).

The synergy between Geography and Statistics will be intensified in these years for the mutual benefit of both fields. In addition to the geographical representation of statistical data, the use of technology based on geographical information systems (GIS) for data collection would increase through the use of electronic devices with information and cartographic applications in the taking of censuses and surveys, offering greater precision in the location of properties and the recording of information that has already been geo-referenced from the moment it is taken. Geographical subjects will be included in censuses and surveys, as in the case of the Census of Municipal Governments which, since its first version in 2009, includes questions on water, solid waste and cadastre.

In 2010, the Hypsographic and Bathymetric Chart of the Exclusive Economic Zone (EEZ) was published, with a scale of 1:2,000,000 in 2D and 1:6,000,000 in 3D and 1:8,000,000 as well as the technical standards of the National Geodetic System for Geographic Metadata, on Geographic Addresses and the Standards of Positional Accuracy, in addition to the Mexican Gravimetric
This same year, properties in 28 states are being georeferenced for the PROCAMPO programme.

In 2010, the programme to modernise the country’s public property and cadastral records was launched in collaboration with SEDESOL. The decision was also taken to terminate the use of the institutional air fleet since, as quality information was available from third parties, it was more economical and practical to purchase aerial photographs through this channel than to incur the costs of maintenance and renovation, in addition to the expense of the aircraft and hangar belonging to the Institute. At the same time, the use of high resolution satellite images continued.

The advantage of being one of the few institutions covering the statistical and geographical fields is going to be of particular relevance when the UN decides, in 2011, to give a priority boost to geospatial information management by creating the Committee of Experts on Global Geospatial Information Management (UN-GGIM) for its development and cooperation among countries. The United Nations Statistics Division (UNSD) is charged with coordinating this effort, which seeks to establish a structure for international collaboration, taking advantage of natural synergies with statistics and the operational experience of both the United Nations Statistical Commission (UNSC) and the UNSD. Mexico, through INEGI, would soon begin to play a relevant role in the work of the UN-GGIM and, in 2013, is called upon to chair the committee at the global level during 2013-2017 (Eduardo Sojo in 2013-2015 and Rolando Ocampo in 2015-2017) and at the regional level for America, during 2013-2017 with these same officials and with Paloma Merodio for 2017-2021.

Likewise, the Institute is going to continue, on a permanent basis, with the updating of technology and the methodologies applied in its different programmes, such as the platform Digital Map of Mexico, which is a set of computer tools that allow the consultation, construction, interpretation and analysis of geographical and georeferenced statistical information, offered online to users. Along with its desktop version, which will appear in 2011, 92,639 maps of the country can be downloaded directly to users’ personal computers, where it is possible to superimpose different
layers of information, measure distances, make changes of scale and different levels of zoom, among other functions.\textsuperscript{133}

In 2011 the Virtual Station for Very High Resolution Satellite Images (EVISMAR) will come into operation in coordination with the Ministry of the Navy (SEMAR) to receive images from the \textit{Geo Eye-1} satellite with a virtual antenna and computer infrastructure for the reception, storage, processing and distribution of these images. The station is located in the SEMAR facilities in Mexico City and is managed and operated jointly by the two institutions.\textsuperscript{134}

In the same year, the \textit{aeronautical chart at a scale of 1:250,000}, \textit{the Mexican Republic chart at 1:4,000,000} with bathymetry and 3D hypsography, the \textit{Tactile World Map} with political divisions and the \textit{Mexican Continuum of Elevations 2.0} were published. The INEGI Data Processing Centre was also established with information from the National Active Geodetic Network (RGNA) and international stations, currently consisting of 25 stations distributed throughout the national territory that continuously monitor data from the Global Navigation Satellite System (GNSS) that provides coordinates of the highest positional accuracy available worldwide. The GNSS allows users to have free access to the information during their geodesic-topographic survey.\textsuperscript{135}

In 2012, the INEGI portal published \textit{topographic cartography at a scale of 1:250,000}, the \textit{Tourism Atlas of Mexico} on the website of the Ministry of Tourism and the \textit{Technical Standard for the Generation, Capture and Integration of Cadastral and Registry Data for Statistical and Geographic Purposes}; in addition, the georeferencing of properties in the \textit{PROCAMPO Directory} was completed.\textsuperscript{136} The Directorate General of Geography and Environment (DGGMA) chaired the Sub-Commission on Gravity and Geoid for North and Central America.

\textsuperscript{133} INEGI, “Mapa digital de México V6.3.0”, Servicios, Herramientas en línea.
\textsuperscript{134} INEGI, “Uso de imágenes de satélite para el conocimiento del territorio nacional”, Press release no. 425/14, October 6, 2014. // INEGI, “Imágenes de alta resolución”, Imágenes del territorio.
\textsuperscript{135} INEGI, “Red Geodésica Nacional Activa”, Marco Geodésico.
In 2013, a decree is published in the DOF, announcing the outer limit of the extended continental shelf in the western polygon of the Gulf of Mexico which, in accordance with the provisions of the international law of the sea, is drawn up by means of technical measurements by INEGI. Mexico City hosted the International Conference on Geography and Environment (ICGMA), which has been held in Mexico every year since then. In addition, the *Land Use and Vegetation Chart, scale 1:250 000 series V*, and the *Cartography of Hydrological Areas of Mexico* were published.\textsuperscript{137}

Also, in 2013, the Group of Experts on the Integration of Statistical and Geographic Information is to be established by the UNSC and the UN-GGIM, led by Australia and Mexico - through INEGI - as co-chairs. In 2014, the UN-GGIM’s *Progress Report and future outlook* is presented to the United Nations Economic and Social Council (ECOSOC) with the support of the Ministry of Foreign Affairs (SRE) and the Mexican Commission to the UN, which resulted in the designation of the UN-GGIM by ECOSOC as the main deliberative body on geospatial issues at the UN.

In this year, the Cooperation Project for the Strengthening of Spatial Data Infrastructure in the Caribbean, called the UN-GGIM Caribbean Project, began with the objective of developing the regional geodesic network and implementing the *Digital Map of the Caribbean* with the participation of 17 nations in the region. INEGI took a leading role in the implementation of this project with the support of the Mexican Agency for International Cooperation, providing funds for its financing. The Institute will provide technical support to promote the development of spatial data infrastructure and strengthen the capacity of countries to generate geospatial information and, in particular, to increase their resilience to the presence of devastating natural phenomena, such as hurricanes in that geographical area.

The project was developed from 2014 to 2018 through key local, governmental and academic actors, such as the University

\textsuperscript{137} Idem.
of the West Indies (UWI), which has several campuses in the different Caribbean islands and included 15 countries in the area. Forty-three field location teams and 16 receiving stations or antennas were installed with a network of 14 servers with one central server at the UWI to integrate and process the data from the Caribbean Geodetic Network.

The *Land Cover Map* was designed, which presents spatial objects through polygons of different colours and describes forests, wetlands, water bodies, etc., in collaboration with Mexico’s National Commission for Knowledge and Use of Biodiversity (CONABIO).

Likewise, a team of DGGMA technicians developed - through the platform designed by INEGI that is used for the *Digital Map of Mexico* - the *Digital Map of the Caribbean*, which allows for the visualisation, consultation, analysis and printing of linked statistical and geographic information. In addition to these products, this programme laid the foundations for the future development of geospatial information in the Caribbean region and allowed these countries to have access to global geographic information networks.

In 2014, another programme was initiated on a theme combining geographical and statistical aspects with the UNSD, the so-called Ecosystem Accounts Pilot Project, which is part of the wider United Nations System of Economic Accounts project. In this, Mexico is the pilot country and INEGI is the focal point. Its objectives are: to measure ecosystem services (both in physical and monetary terms), to integrate biodiversity and ecosystems into public policy planning and implementation, and to develop an internationally agreed methodology for use in countries. The national subsystems of Geographic Information, Environment, Land Planning and Urban Development (SNIGMAOTU) and Economic Information (SNIE) participate, with the support of various operational areas of the Institute such as DGGMA and DGEE, through the Directorate of Satellite Accounts under the responsibility of Raúl Figueroa.

The project has been carried out in two phases, one from 2014 to 2016 in which a technical working group was formed, with the participation of the country’s environmental sector which was
supported by high-level international missions for the developing of a national plan and to carry out preparatory work for the preparation of physical accounts, the integration of an information system and a map of plant and carbon content. Work was also carried out with the Group on Earth Observations (GEO) to set up the so-called Earth Observatory for Ecosystem Accounts.

The second phase (2017-2020), currently in progress, consists of the development of the so-called Natural Capital Accounting and Valuation of Ecosystem Services Project (NCAVES) with pilot tests initiated in 2017 in Mexico, as well as in Brazil, China, India, South Africa and five countries of the European Union.

In 2014, in support of the Ministry of Environment and Natural Resources (SEMARNAT) and in conjunction with the National Institute of Ecology (INECC), INEGI participated in the technical and operational redesign of the Annual Operation Certificate (COA) which collects information on emissions and transfers of pollutants into the air, water, soil and subsoil of hazardous materials and waste. Rigorous criteria were applied to ensure the generation of statistics with standardised, structured and documented information in the form of metadata. As of 2017, SEMARNAT has implemented the use of this tool in Mexico, through which more than 10,000 companies currently register information; with it, annual reports are generated for the Registry and Transfer of Pollutants, the National Inventory of Air Emissions and the Registry of Greenhouse Gas Emissions, which in turn contribute data for the National Inventory of Greenhouse Gases and Compounds.138

In 2015, the Jalisco Pilot Programme was launched to update methodologies for generating topographic maps in urban localities using images obtained by EVISMAR. In its first stage (2015-2018) it covered 166 localities with an area of 24,249 km² and in the second stage (2019-2020) it will collect images of 78 localities in an area of 13,834 square kilometres.

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INEGI actively participates in the Group of Earth Observations (GEO), which is an international voluntary association of 109 governments and 136 specialised organisations. Its objective is the coordination of Earth observations (satellite and other forms of remote sensing, as well as drones, buoys and observations in situ) to integrate information useful to public and private decision makers. It is based on the principles of open data and seeks to constitute a common platform that can be accessed by users, both interoperable and collaborative.\textsuperscript{139} The Institute together with SEMARNAT constitute the focal point in Mexico.

In November 2015, the Twelfth GEO Plenary Meeting and Ministerial Summit was held with the participation of 60 countries and from which the so-called \textit{Mexico Declaration} was derived containing its objectives for the following five years.

INEGI has acted as a liaison by bringing the activities of GEO closer to UN-GGIM and to the work of the UN on measuring SDGs. This has resulted in better coordination of the international community’s efforts on issues such as climate change, desertification and land degradation, biodiversity, disaster risk reduction, sustainable urban development, forest and ocean protection, agricultural monitoring and food security, among others. In May 2016, in the framework of the 47th UNSC meeting in New York, INEGI, together with GEO and UN-GGIM, organised the first forum for the integration of statistical and geographic information under the title of Geospatial and Earth Observation Information in Support of Official Statistics and Monitoring of Sustainable Development Goals.

As a result of the relationship with GEO, Mexico received a donation of 10 satellite information receiving stations from the National Oceanic and Atmospheric Administration (NOAA) of the United States, which were distributed among different Mexican institutions, one of which corresponds to INEGI, installed in the Institute’s headquarters in Aguascalientes and managed by personnel from the DGGMA and the Mexican Space Agency. An agreement

\textsuperscript{139} Group on Earth Observations (GEO), “About us”, Who we are.
was also signed with the United States Geological Survey (USGS) to share information from that institution’s Landsat satellites.

The 47th session of the UNSC also resulted in a decision to create the Geospatial Information Working Group of the Interagency and Expert Group on SDG Indicators, co-chaired by INEGI-Mexico and the Swedish statistical office (Statistics Sweden) comprising 12 countries, the UN, the OECD and the GEO, with the aim of analysing SDG indicators from a geographical and Earth observation perspective.\textsuperscript{140}

In 2016, INEGI begins updating the statistics and indicators of the Climate Change Information System that it provides to Mexico’s Inter-Ministerial Commission on Climate Change, of which it becomes a permanent member. In this same year a cadastre module is added to the National Census of Government, Public Security and States’ Penitentiary System.

In 2017, a drinking water module will be integrated into the National Household Survey (ENH), and two questions on the same topic will be added to the National Survey of Government Quality and Impact (ENCIG). That year, INEGI began to participate in the working groups for the design of statistics and indicators related to climate change organised by the United Nations Economic Commission for Europe (UNECE), which were presented in Santiago de Chile and Madrid in 2019.

In 2018, the Institute began to implement the \textit{Geospatial Data Cube} system as part of the country’s Geographic Information System, which provides users with access to satellite images by place and date of capture for direct use and processing. These images are corrected in such a way that the comparability of their measurements over time can be observed, making it possible to analyse the behaviour of a region throughout the interval under study. It is a data project that uses computer technologies and an Open Data Cube type data architecture.

For this, INEGI uses satellite image access from Landsat services with a resolution of 30 meters per pixel starting the historical period from 1983 to the first semester of 2019 with a total of 120,000 images provided by the USGS.\textsuperscript{141}

Since the volume of data reaches very high levels, this technology operates under Big Data principles for the mass processing of large volumes of information. In November 2019, the automation of the downloading processes and the continuous incorporation of Landsat images into the \textit{Data Cube} was completed, thus reaching the so-called \textit{operational} stage of the system, which from 2020 will be oriented to incorporate INEGI products for external dissemination. This project is at the international forefront in the development of technologies and tools for the integration of statistical and geographic information, and is therefore followed with particular interest by scientific communities in both fields and its advances and results are being shared in multilateral forums.\textsuperscript{142}

The Institute continues, today, with its programme of revision and modernisation of its activities through the use of GIS technologies in the permanent updating of the National Geostatistical Framework. For the 2019 Economic Census and the 2020 Population and Housing Census, this technology was used in around 17,000 and 180,000 pieces of equipment, respectively. It allowed for the detection of new blocks and their location in the national territory, as well as to obtain the statistics of economic units and population and housing georeferenced at the very moment of the survey.

Currently, with the use of GIS technology, INEGI offers geographic information and georeferenced statistics in the \textit{Digital Map of Mexico} with 268 layers of information including the following products: topographic information, Geostatistical Framework, National Road Network, National Housing Inventory, Economic Census,

\textsuperscript{141} INEGI, “Estadísticas a propósito del Día Mundial del Sistema de Información Geográfica (SIG)”, Press release no. 552/19, November 12, 2019.

\textsuperscript{142} Notes from the Vice-Presidency for Geographical Information, Environment, Spatial and Urban Planning, prepared for the author, January 27, 2020.
Origin-Destination surveys and DENUE, with a total of 71 million geographic objects comprising more than 4 TB of information.

9.8. ENIGH and measuring poverty

Household income and expenditure surveys produce information on the distribution of income in a country’s population and the amounts and patterns of household expenditure. They provide information on the living standards and conditions of the population, as well as estimated levels of poverty. In developing nations in particular, they are an indispensable input for the development of social and economic policies. Due to the particularities and sensitivity of the information to be collected, they require the use of special methodologies in their planning and implementation, which allow for responses that are in line with reality and avoid underestimation, especially of income.

As we have seen, the Institute began conducting its National Survey of Household Income and Expenditure (ENIGH) in 1984. Although there are several precedents for surveys of this type in the decades of the 50s and 70s of the 20th century carried out by the Institute’s General Directorate of Statistics, Banxico and the Ministry of Labour and Social Welfare (STPS), ENIGH 1984 sought to establish, for the first time, a regular survey in the INEGI programme that offers historical comparability through a homogenised methodology that follows international recommendations in the field.

It started with a sample size of 5,160 households producing information at the national level with a geographical breakdown between high-density (15,000 inhabitants or more) and low-density (less than 15,000 inhabitants) localities. The survey period was from August 25 to November 19, 1984, divided into 10 tens, in each of which information was collected for seven consecutive days in each household.
By measuring income and expenditure together, it was possible to more accurately capture household flows and to establish a balance (congruence) between what was received and what was spent by household members. In addition, the survey identified socio-demographic and housing infrastructure characteristics.\(^{143}\)

Although its periodicity was initially not determined, the survey was carried out again in 1989 and 1992, before being conducted every two years, except for 2005, when it was carried out on an exceptional basis, resuming its cycle in 2006 and subsequent years. INEGI has made gradual improvements to ENIGH over time due to both the experience of the operations themselves and international recommendations. It has also increased the size of the sample and, by 1992, the geographical breakdown of high and low density localities with reference to a line greater or less than 15 thousand inhabitants was replaced by urban (localities of 2,500 and more inhabitants) and rural (less than 2,500 inhabitants) areas in accordance with the National Geostatistical Framework.\(^{144}\)

In 2004, the General Law for Social Development (LGDS) was published, which created the National Council for the Evaluation of Social Development Policy (CONEVAL) and incorporated the mechanisms for the evaluation and monitoring of government social development policies. This law establishes that poverty measurement must be completed every two years at state level and every five years at municipal level (Article 37) and that the information generated by INEGI must be used independently of any other data considered relevant (Article 36). The Law originally set out eight indicators that should be considered for measuring poverty: current per capita income, educational gap, access to health services, social security, quality and spaces of housing, access to basic services in housing, nutritional and food quality, and degree of

\(^{143}\) INEGI, Encuesta Nacional de Ingresos y Gastos en los Hogares (ENIGH) 1984, Programas.

\(^{144}\) INEGI, Encuesta Nacional de Ingresos y Gastos en los Hogares (ENIGH) 1992, Programas.
social cohesion. In 2013, the degree of accessibility to paved roads was added as the ninth indicator (Article 36).

ENIGH was the natural candidate to meet the requirements of these provisions, requiring an increased sample size to achieve state-level estimates, as it was designed with national coverage only. In agreement with CONEVAL, a decision was made to incorporate to the 2008 National Survey of Household Income and Expenditure (which included income and expense questionnaires) a complementary sample through the Socioeconomic Conditions Module (SCM) with the questions required for the multi-dimensional measurement of poverty at state level, which remained as a subset of the Survey.

From 2008, the SCM was implemented on a biennial basis. In that year, the traditional ENIGH was extended with the support of seven states to 35,146 households in which the SCM was also carried out. In order to have information on the SCM in at least 2,000 homes per state (to reach the required estimates per state), it was supplemented with a sample of 34,960 households financed by CONEVAL, where the SCM alone was applied, bringing the total to 70,106 households.

This scheme continued until 2014 by distinguishing in its publication the traditional part of the Survey from the so-called new construction corresponding to the SCM.

At the conclusion of the 2014 SCM, the post-operational review conducted by INEGI found a relatively small number of questionnaires (3%) presenting incomplete information, with inconsistent data on expenses and income or reporting zero income along with the existence of a job. As a result of this, measures were primarily established for training the interviewing personnel, as well as for control

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146 INEGI, Relatoría y análisis del INEGI. Encuestas de ingresos y gastos de los hogares 2008-2016 (Mexico: INEGI, 2017), pp. 9 & 10
and recovery of information to ensure that the premises, established in the design of the Survey, were correctly fulfilled in the future.

These measures would be implemented in the next SCM, which would be carried out in 2015, the year in which, although the biennial periodicity was not followed, the five-yearly municipal information indicated by the LGDS was to be obtained, which would also be complemented with data from the 2015 Intercensal Survey. This would be the first time that the SCM would be carried out independently of ENIGH.

The 2015 SCM was conducted for 64,093 households and had results outside the historical trend of previous SCMs, as it showed an unexpected increase in household income, with a variation not previously observed.

INEGI notified, the same day in which the results were presented to the general public and CONEVAL (July 15, 2016) of this situation that prevented comparisons with previous exercises, requiring an exhaustive investigation: “The SCM maintains the conceptual and statistical design of the previous ones. However, the measures implemented to improve the field capture of income mean that this year’s Module is not comparable with previous statistical exercises...”.

The sensitive nature of the subject immediately led to widespread controversy, reflected in publications and articles in national and foreign media. There was even speculation about a possible agreement between INEGI and the federal government to improve the poverty statistics in the country, while the dis-

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148 INEGI, Relatoría y análisis del INEGI. Encuestas de ingresos y gastos de los hogares 2008-2016, p. 3.
discussion among analysts concentrated on the technical aspects that had given rise to the situation since, as the data were not comparable, it was not possible to assume an increase in income and therefore a reduction in poverty from one year to the next. In any case, in seeking to generate better statistics thus correcting errors in data collection, a previous underestimation of household income had been discovered.  

CONEVAL issued, on the same July 15, 2016, a press release under the title *Positioning of CONEVAL to the changes made by INEGI in household income capture*, in which it stated that the changes “... were not technically discussed with CONEVAL nor announced in a timely manner so the income capture process [...] was not transparent...”.

However, the information regarding the changes had been made available and shared with CONEVAL since July 3, 2015 pursuant to the terms of the agreement between both institutions signed on July 1 of that year for the carrying out of the 2015 SCM. In fact, CONEVAL’s Directorate for Poverty Measurement Standards and Methodology, responsible for this matter, had issued a certificate of receipt of both the final model of the questionnaire to be applied in the 2015 SCM and its respective instructions for completion, the

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152 “Those who have pointed out that the figures falsely claim to show extraordinary income growth quite simply did not read what INEGI stated [...] or they acted as if they hadn’t...” (Enrique Quintana, “INEGI y CONEVAL ¿Quién tiene razón?”, *El Financiero*, Opinión, Mexico, July 19, 2016); “To say that INEGI wanted to deceive the Mexican population and make more than five million poor people disappear in one fell swoop has no basis in reality...” (Maria Amparo Casar, “Torpeza o manipulación”, *Excélsior*, Opinión, Mexico, July 27, 2016); “... I am certain [...] that there was a serious effort to generate better statistics based on detecting previous errors in data collection. And unfortunately what should be a technical discussion [...] has become an ideological, even ideologised, debate...” (Enrique Quintana, “El secreto gusto de que haya más pobres”, *El Financiero*, Opinión, Mexico, July 26, 2016); “In the end, whether we like it or not, we do not have as many poor people in the country as surveys suggest, while the distribution of income is actually much worse than it reveals, [...] it does not mean that poverty figures have been reduced by 9.5 percentage points, but that poverty was previously overestimated...” (Jonathan Heath, “La verdadera pobreza”, Análisis y perspectivas económicas de México, August 15, 2016).

new operational procedure manuals for each of the field figures and the criteria for information capture and validation.\textsuperscript{154}

Once this situation was clarified to CONEVAL, the latter confirmed having received the information, “... the products stated were received...”, explaining that “... it was not deemed necessary to issue observations, given that [...] CONEVAL subscribes that the Institute may modify the manuals between surveys [...] in order to improve the understanding of their contents and favour the quality controls of the information collected.”\textsuperscript{155}

Consequently, CONEVAL accepted the products agreed for the 2015 SCM on September 12, 2016 and covered the payments corresponding to the last deliverable, showing that the database’s set of variables met the requirements as requested. INEGI committed to carrying out a series of actions to review and analyse the results, in particular the income variables, in order to jointly determine the additional actions required for ENIGH 2016.\textsuperscript{156}

The Institute’s position was devoted to a technical review of the SCM results that was carried out in coordination with CONEVAL. An attempt was made to avoid a media debate - in any case detrimental to the image of the production of information related to poverty - until the corresponding diagnosis and consequent measures that would be notified to the public were made.

For such purpose, in addition to the exhaustive internal review of the survey’s sample and operational design - including the training strategy - and the results obtained, a Technical Working


Group in collaboration with CONEVAL was established and the so-called Expanded Technical Group also with CONEVAL as well as academic and civil society experts, in which OXFAM-Mexico, the Centro de Estudios Espinosa Yglesias (Centre of Studies Espinosa Yglesias), the Instituto de Estudios de la Transición Democrática (Institute of Studies for the Democratic Transition), several researchers from the Centro de Investigación y Docencia Económicas (Centre for Research and Teaching in Economics), COLMEX and the Programa Universitario de Estudios del Desarrollo (the University Programme for Development Studies) of the National Autonomous University of Mexico (PUED-UNAM) participated. These groups contributed criticism and analysis of the results and design of the SCM.

In the research developed by INEGI that was presented to these working groups, an increasing reluctance was found among respondents to provide data on their income for varying reasons, among which insecurity or fear of losing benefits from social or fiscal programmes stand out. It was also reported that the shortcomings of the SCM 2014 were seen as an area of opportunity to improve its quality and consistency under the same conceptual and sampling framework. As this had affected a small number of questionnaires, no substantive impact was expected from the changes made in training, so interviewers were instructed to look for consistency in the justification for denial of income and in the automation of reports to control capture errors and inadequate justifications.\footnote{INEGI, \textit{Relatoría y análisis del INEGI. Encuestas de ingresos y gastos de los hogares 2008-2016}, p. 4.}

Finally, INEGI and CONEVAL found themselves in a somewhat paradoxical situation since, although the changes made constituted an improvement in the process of capturing information, they did not keep comparability with previous exercises in order to understand the evolution of poverty in the country.

In addition, there was the problem that the timing of the SCM review was coupled with the imminent undertaking of ENIGH 2016, scheduled for August-November of that year, according to the calendar observed since its 1984 edition.
A series of decisions were taken that sought to solve both sides of the problem. On the one hand, a new historical series began with the 2016 Household Income and Expenditure Survey which incorporated the operational improvements of the 2015 SCM and, in order to have information comparable with previous exercises, a decision was taken to develop the so-called statistical models for the continuity of the SCM-ENIGH as an input for measuring multidimensional poverty without losing continuity with the biennial SCM-ENIGH series started in 2008. These were constructed using statistical techniques that adjusted the income reported in the SCM, seeking to reproduce the conditions of the survey without the effect of the changes detected by operational improvements. The ENOE was also used as an external source which, with a sample of 120,000 people, captures around 70% of labour income.

Thus, ENIGH 2016 - which was the first survey of this type in which all households responded to both the income and expenditure questions as well as those of the SCM (with a sample size of 81,515 households) - was accompanied by a parallel SCM-2014-type survey. This sought to replicate the conditions of the 2014 survey with a sample of 4,445 households and was carried out with an independent team from ENIGH 2016, with no previous experience of these events, who received the training used for the SCM 2014.158 The Statistical Model for the Continuity of SCM-ENIGH 2016 was also published.

The National Survey of Household Income and Expenditure was re-run in 2018 in 87,826 homes with the same format as the 2016 edition and the 2018 Statistical Model for the continuity of the SCM-ENIGH was simultaneously developed.

For 2020, when ENIGH is scheduled to be held again, the Institute continues its research agenda on the subject with the aim of improving the quality of the information obtained in the face of its two main problems: the under-reporting of income and the so-called truncation, a result of the fact that the country’s highest

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158 Ibid., pp. 24 & 25.
income households, which in turn concentrate a very high fraction of income, have a selection in the sample close to zero.

In this sense, the Directorate General for Socio-demographic Statistics (DGES) continues to evaluate the use of administrative records for the generation of information on income, identifying data sources to generate synergies with this programme. In particular, work continues in collaboration with the Tax Administration Service (SAT) in order to use its databases while protecting the identity of tax filers, which would allow for more information on households.

In the same year, in accordance with the Law, information will be produced at the municipal level, using the Population and Housing Census. The National Survey of Household Income and Expenditure will be carried out, as it is every two years, from August to November. In addition, for the first time, the annualised ENIGH will be conducted over 4,500 households per month in order to identify the seasonal movement of income throughout the year. The data in this case will have national coverage.

9.9. What is INEGI doing today?

37 years after its foundation, the Institute has consolidated an extensive integrated work programme, as we have seen, through numerous censuses, surveys, the use of administrative records, geographical products and various information production processes, such as national accounts and price indices. Over time, it has developed various instruments, under constant review to improve its procedures and, where appropriate, adopt new methodologies and technologies.

Some of these programmes employ permanent operations that are carried out throughout the year (such as the ENOE); others that are carried out every quarter (the ENSU, for example);
by year (such as the ENVIPE) or biennially (such as the ENVE); and still others (such as the ENDIREH) every five years; censuses that are carried out annually (for example, those of state governments), biennially (municipal governments), five-yearly (economic) or decennially (Population and Housing). The Institute also has numerous geographical and administrative records programmes that are carried out practically throughout the entire year. All of them follow rigorous methodologies and obtain important information, indispensable for public policies and the needs of all sectors.

Currently, INEGI’s work strategy includes more than 50 surveys, 19 censuses, 19 administrative records programmes, six national accounts programmes, three national price index programmes, 12 geographical programmes, one cyclical indicator programme and one Big Data programme, for a total of 111 programmes.

Today, the Institute is among the statistical and geographic agencies offering the widest range of information in the world on social, economic and natural phenomena. In addition, it participates in important international programmes at the forefront of the development of these topics, such as the United Nations Programme for SDGs and numerous bilateral and multilateral projects of a technical nature, as we have seen. A quality assurance programme has also been implemented across all its activities to maintain and improve the performance standards of its information production, which we will be addressed in the following chapter.

**DISSEMINATION OF INFORMATION**

All the information produced by INEGI is published on its website in accordance with a series of protocols and recommendations of good international practice that are part of the measures to guarantee the impartiality, objectivity and transparency of official statistics.159

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The calendar is announced six months in advance, while any change of date is published in advance and is accompanied by a justification and the new day on which the information will appear.

In 1994, INEGI began to publish its Calendar for the dissemination of short-term economic information, sending the tabulations to users by fax at 2:30 p.m. on the appointed day. In 1996 the publication of the calendar information on the Institute’s website began and in 1999, the sending of bulletins and tabulations via e-mail.

In 2010 the time of publication was changed from 14:30 to 9:00 and in December 2009 the first Information of National Interest (INI) calendar was presented with the dates of dissemination for the following year. At the same time, the publication of a link to the newsletter on Twitter was initiated and extended to Facebook in 2011, when also the broadcast schedule was adjusted to 8:00.
In 2016, information from other statistical and geographical programmes was included in the calendar, in addition to the INI and the previously published economic analysis. In 2018, INI programmes from government units other than INEGI were added, and in June of that year, in line with the recommendations of the OECD peer review for Mexico (see Chapter 10), for the first time a six-monthly calendar was published for the first half of 2019, with the aim of announcing dissemination dates at least six months in advance in all cases.

In 2019 the time of publication on the website was brought forward to 6:00 in order to offer users greater opportunity to use this information for their different needs. In fact, Mexico is one of the few countries that makes it available earlier. The United States Census Bureau does it at 8:30 and 10:00; INE Spain at 9:00; the United Kingdom at 9:30; Canada at 8:30; and Colombia starts at 10:00, all in their respective local hours.

Next, we will refer to some of the programmes currently in operation that stand out either because of their size or because of their opportunity or relevance for other programmes without diminishing the importance of the information produced by smaller operations or those carried out constantly by the Institute.

2019 Economic Censuses

This census operation continues the tradition, begun in the 1930s, of conducting these censuses every five years, providing the most complete information on the national economy at any given time.

For the 2019 Economic Censuses, several innovations were added for the obtaining of data on the specific characteristics of businesses and their management. They present information about people working in establishments (according to gender, age, educational level), paid staff, use of accounting systems, means of payment used and problems faced by the businesses; they also investigate e-commerce and identify sources of supply of personnel, franchises and the demographics of the businesses.
A total of 994 activity classes were used from the 1,084 activities in NAICS 2018 through 18 questionnaires and two modules. The questionnaires were applied through the use of mobile devices in 95% of the cases, via the internet in 4.3% and in print in 0.7%.\textsuperscript{160}

The work began in 2018 with the public consultation of the census’ methodological and conceptual proposal opened on the INEGI website and with selected users in person in different forums and working meetings. In the same year, the directories of large establishments and micro, small and medium enterprises were updated, as well as the National Geostatistical Framework, and preparations were made to adapt GIS technology to the electronic devices to be used in the field work.

The undertaking took place from February to July 2019, the preliminary results were presented on December 10, 2019 and the final results on July 16, 2020.

The organisation involved 26,000 people, covered 1.5 million blocks and used 17,000 electronic devices. In accordance with their geographical coverage, the activities of the 2019 Economic Censuses were divided into two large groups: one for those that involved collecting data throughout the national territory (fishing and aquaculture; mining; electricity, water and gas; construction; transport, post and storage; as well as financial and insurance services) and another for manufacturing, commerce and non-financial services, in which information was collected by means of total coverage of the economically largest and most important geographical areas of the country and, by means of a sample, in rural areas.\footnote{INEGI, Cobertura geográfica, “Censos Económicos 2019”, Programas.}

A total of 6,373,169 establishments were identified, employing 36,038,272 people. Of these, 6,044,821 started activities before 2019 and 328,348 in that year. Compared with the results of the 2014 Economic Censuses, the total number of businesses in 2019 was 12.7% higher and had an average annual growth rate of 2.4% between the two censuses. The vast majority (94.9%) of economic units in Mexico are micro-businesses (up to 10 workers), which contribute 37.2% of total employment; large establishments (more than 250 people) represent only 0.2% of total units, but account for 32% of employed personnel. This information, as we have mentioned, serves to update DENUE.

Other important data resulting from the innovations made to this census programme indicate that 24% of large establishments and 18.7% of small and medium sized ones (SMEs) make sales over the Internet, while among micro businesses only 2% do so; 62.6% of the establishments in the country are informal;\footnote{According to the definition of informality based on variables from the Economic Censuses, it refers to establishments that have each and every one of the following characteristics: five persons employed or less; do not pay employer’s contributions to social security schemes or other social benefits; are not part of an enterprise with several establishments; do not have personnel provided by another business name, and do not have payments to another business name that hires personnel and provides it to them; do not have expenses for accounting, legal and administrative services; do not have expenses for business advice, marketing and related services; do not use an accounting system, and do not pay for the services of an external accountant to keep their accounts.} 46.5%
of economic units do not keep accounting records; and 39.1% consider insecurity as the main problem they face.\textsuperscript{163}

THE POPULATION AND HOUSING CENSUS OF 2020

The most significant event in INEGI’s calendar of activities is this programme, which takes place every 10 years due to the importance of the demographic information and the housing infrastructure obtained, as well as the size of its operation, which involves travelling around the country and visiting each of the households in its localities.

The planning of the Census began in 2017, as well as the public consultation of the methodological and conceptual proposal which, in compliance with Article 88 of the \textit{LSNIEG}, took place from August 21 to November 30 of the same year via the Internet and through meetings with users. For this purpose, the User Registration System was created on the INEGI website for sending contributions.\textsuperscript{164} As a result of the consultation, valuable suggestions were included in the Census on issues such as disability, Afro-descendence, municipal migration, cause of migration and comprehensive measurement of employment.

A thematic test was conducted in 2018 to review the functionality of the questions that were newly included or had changes in phrasing. In the second half of that year, the Census Pilot Test was carried out, while in 2019 the recruitment, selection and training of the enumeration and verification personnel was carried out, as well as tenders to acquire the equipment to be used in the operation.\textsuperscript{165}

The 2020 Census was scheduled from March 2 to 27 with reference to 00:00 hours on March 15. Over 205,000 people participated in its organisation, of which 151,000 were interviewers and 32,000 supervisors, who toured 210,000 localities.

\begin{thebibliography}{99}
\bibitem{165} Ibid., p. 12.
\end{thebibliography}
The Census was conducted by direct interviews recorded on mobile devices, by self-registration on the Internet and by telephone assisted interviews, with a basic questionnaire of 38 questions for the exhaustive enumeration of most of the population, and an extended questionnaire applied to a probability sample of 4 million households plus a selection of municipalities in special circumstances with 65 more questions, for a total of 103.

Two questionnaires on development and access to services were drawn up, one in rural areas by means of an interview with local authorities and another in urban environments to be filled in by direct observation of the interviewers themselves on road information, availability of furniture, urban services, restriction of passage and commerce on the public highway. In addition, a questionnaire on social assistance accommodation was applied.166

166 Ibid., p. 10.

The launch of the Population and Housing Census of 2020 (CDMX, Mexico)

Julio Santaella with Edgar Vielma & Carole Schmitz accompany INEGI’s interviewers.
A total of 183,000 mobile devices equipped with digital cartography and a global positioning system (GPS) were used to obtain the information in the field, which made it possible to capture the data directly on INEGI’s electronic systems, as well as to automatically geo-reference them. Also, for the first time, the georeferencing of the overnight stay points of the homeless population (in a street situation) was carried out. This information was transmitted in real time to the Institute’s computer centres and allowed the respective cabinet comparisons to be carried out automatically. This methodology significantly reduces the time needed to produce information, as well as the use of paper and dispenses with the manual capture process used in previous surveys. The time saved in the delivery of results with these improvements is calculated at one month.

Several innovations were included in the themes of the questionnaires:

- In the basic one, among the characteristics of the houses, the equipment for the disposition of water (cisterns and vats) and ICT (like streaming services of movies, music or videos of payment by internet and video game consoles) were added. In terms of people, the Afro-Mexican or Afro-descendant self-identification, type and degree of disability, municipality of residence in 2015, cause of migration and verification of economic status.
- In the expanded version, in terms of housing, the place where the kitchen is located, availability of a fireplace, number of light bulbs and energy-saving bulbs, separation and recycling of rubbish and waste, existence of deeds or title deeds, financing for acquisition, debt and identification of the owner(s). In the case of individuals: place of school attendance; time, method and means of transfer to school and work; and identification of the last living child born. It also included questions about causes of migration and return, income of someone living in another country or in other housing within the country, income from government or retirement/pension programmes, and adult food.
At the close of this edition, the final results of the Census are scheduled to be presented on December 2, 2020.

THE CHANGE TO BASE YEAR 2013 FOR THE NATIONAL ECONOMIC SURVEYS

Due to the fact that the evolution of a country’s economy has real variations in the numerous types of economic activity, in order to have indices that weigh the relative importance of each of the components of the economy, it is necessary to make updates or changes to the base years that are used as a reference for the construction of indices.167

In 2017, INEGI made the change to the base year of 2008 to 2013 for national accounts and that of the CPI to the second half of July 2018. In May 2019 the change corresponding to the programme of monthly and annual National Economic Surveys was released.

The latter change was made in line with the information provided by the 2014 Economic Censuses for the use of new weights and the 2017 SCNM change of base year. Previously, in April-May 2017, a public consultation had been conducted to ascertain the needs of information users.

The base year 2013, currently in force, uses NAICS 2013 and maintains the availability of external statistical series for all surveys, as it retains the length of the previous economic series.168

As a result of this change, there have been improvements in the dissemination of non-financial private services’ opinion indicators - Monthly Survey of Business Opinion (EMOE) -; 89% of the value of manufacturing income - Monthly Survey of the Manufacturing Industry (EMIM) - and 92% of the total income obtained from the marketing of goods and services are reached; the measurement of the digital

167 Heath, Lo que indican los indicadores. Cómo utilizar la información estadística para entender la realidad económica de México, pp. 7-11.
Current International Relations

As we have seen throughout the different chapters of this book, INEGI has had relevant international participation since its foundation in all its areas of specialisation. It currently has bilateral activities with more than 50 countries on all continents and participates in practically all the multilateral forums related to its areas. Apart from the international actions mentioned in sections 9.3 and 9.7, we will refer below to the key actions of recent years.

In 2013 the OECD established the Committee on Statistics and Statistical Policy (CSSP) which replaced the Statistics Committee created in 2004. Its objectives are to review and promote statistical programmes of international relevance for the countries represented, as well as the coordinating of the internal statistical programmes of the OECD. It is made up of the statistical offices of the OECD member countries. The CSSP, in turn, has a management body or executive bureau that prepares, analyses and presents proposals to the plenary session of the CSSP, made up of the OECD Statistics Division and a small group of NSO presidents. It was chaired by Eduardo Sojo in 2014-2015 and Julio Santaella joined this governing body in 2019 and 2020. The other current members, in addition to Mexico, are Canada, Poland, the United Kingdom, Finland, Denmark and Eurostat.

The mandate of the Conference of European Statisticians (CES) of the United Nations Economic Commission for Europe (UNECE) is to increase the statistical capacity of its member countries. The Conference is organised in coordination with the CSSP, alternating venues with the OECD (in Paris) and the Commission itself in Geneva. The statistical offices of the non-European member countries of the OECD participate in its work.
The CES has existed since 1928 under the League of Nations and in its present form has been the governing body of the UNECE in statistical matters since 1953. It is the original creator of the Fundamental Principles of Official Statistics in 1991. It brings together experts from the entire international statistical community to seek the development of official statistics, review and promote methodologies and good practices, issue recommendations and standards, and review and address emerging issues in statistics.

Since the beginning of its participation in the OECD’s statistical meetings in 1991, INEGI has also been part of the UNECE’s statistical activities and its board of directors in 2014-2015 (Eduardo Sojo) and from 2016 to 2020 (Julio Santaella). The board is composed of six or seven members of the United Nations Economic Commission for Europe, one or two countries from other regions and is also made up of the heads of statistics of Eurostat, OECD,

Attendees of the Conference of European Statisticians (Aguascalientes, Mexico, February 2020)

Among the attendees: Mariana Kotzeva (director general of Eurostat), Lidia Bratanova (UNECE), Paul Schreyer (OECD), Anil Arora (Canada), Padraig Dalton (Ireland), Timo Koskimäki (Finland), Dominik Roskrut (Poland), Julio Santaella (president of INEGI) & Eduardo Gracida (INEGI).
UNSD, IMF, WB and the President of the CSSP. It meets twice a year, directs and coordinates the statistical work of the Conference and guides the preparation of the plenary sessions of the Conference.\textsuperscript{169}

The Institute hosted the first meeting of the Bureau in Latin America on February 25 and 26, 2020 at its headquarters in Aguascalientes.

In 2017, the Ninth Statistical Conference of the Americas (SCA) of ECLAC was organised in Aguascalientes with the presence of Julio Santaella (president of INEGI) and Alicia Bárcena (executive secretary of ECLAC). Mexico presided over it from 2015 to 2017 through Vice-President Mario Palma.

A direct precedent for the SCA was the Tenth Inter-American Conference on Statistics, also held in Aguascalientes in 1990, which discussed the change in its organisational format, as well as its affiliation to ECLAC, as mentioned in \textit{Chapter 5, section 5.1, National and International Agreements}.

\textsuperscript{169} Information provided to the author by Pilar García Velázquez (director of International Affairs, INEGI), January 3, 2020.

\begin{center}
\textbf{Attendees of the Ninth Statistical Conference of the Americas of ECLAC (Aguascalientes, Mexico, November 2017)}
\end{center}

On the first row: Rolando Ocampo, Luis F. Yáñez, Paloma Merodio, Pascual Gerstenfeld, Julio Santaella, Alicia Bárcena, Mario Palma, Stefan Schweinfest & Enrique de Alba
The Institute participates through the Vice-Presidency of the National Subsystem of Government Information, Public Security and Justice and the Directorate General of Government Statistics, Public Security and Justice in the UN Commission on Crime Prevention and Criminal Justice that meets annually in Vienna, Austria. It is one of the few statistical offices that have attended this commission, mainly bringing together those responsible for public policy on crime and drugs from around the world. In addition, on the occasion of the presentation to the UN of the *Road Map for the Improvement of Drug Statistics*, promoted by the UNODC and INEGI, it has participated in the United Nations Commission on Narcotic Drugs, which also meets annually in Vienna.

INEGI is a member of the High-level Group for Partnership, Coordination and Capacity-Building for statistics for the 2030 Agenda for Sustainable Development (HLG-PCCB) created by the United Nations Statistical Commission (UNSC) at its 46th session in March 2015 with the objective of establishing a global partnership for information on sustainable development. Its platform for intensifying international cooperation among information technology, geospatial information, data science, users and civil society representatives is the United Nations World Data Forum, the next session taking place in Bern, Switzerland, from October 18 to 21, 2020. The Institute, through Julio Santaella, represents Mexico and Central America in the High Level Group (2019-2021) and is part of the Planning Subgroup of this Forum.170

INEGI has maintained active participation in the forums organised by the ISI (International Statistics Institute), as well as its sister associations. Mario Palma chaired the International Association for Official Statistics (IAOS) from 2017 to 2019 and organised, in collaboration with the OECD, its Sixteenth Biennial Conference in September 2018 in Paris, France.

In coordination with UN Women, the Institute established the Global Centre of Excellence on Gender Statistics in 2018, which became the second centre of its kind in Mexico under the model

170 Idem.
The international community of official statistics (some of whom are present 20 years after the IAOS Conference in Aguascalientes). Among others: Mónica Aspe (Mexican ambassador), who inaugurated the event, Stefan Schweinflust (UNSD), Walter Radermacher (European Commission), Martine Durand (OECD), Peter Van de Ven (OECD), Ada Van Krimpen (ISI), Hermann Habermann (USA), Misha Belkindas (IAOS), Angela Me (UNODC), Steve Penneck (ISI), Jorge Todesca (Argentina), Jean Louis Bodin (France), Gemma Van Halderen (Australia), John Pullinger (United Kingdom), Hallgrimur Snorason (Iceland), Nancy McBeth (Oman), Jagdev S. Virdee (SCORUS), Denisse Livesley (United Kingdom), Hasnae Fdhil (Morocco), Oliver Chinganya (Zambia), Ola Awad (Palestine), Mohd Uzir Mahidin (Malaysia), Lidia Bratanova (UNECE), Eric Rancourt (Canada), Roland Jansen (UNSD) & José A. Mejía (BID). Representing Mexico: Julio Santaella, Eduardo Sojo, Mario Palma, Enrique de Alba, Adrián Franco & Enrique Ordaz.
of the INEGI-UNODC Centre of Excellence. Its objective is to link knowledge and experience in the production of gender statistics at the international, regional and national levels to contribute to the promotion of gender equality and the implementation, monitoring and evaluation of the SDG agenda 2030. Paulina Grobet was appointed as its first Director.

POSTSCRIPT: PRODUCING INFORMATION IN THE TIME OF PANDEMIC

The coronavirus pandemic or COVID-19, which began in Wuhan, China, at the end of 2019 and soon spread to other countries, reached Mexico in the first months of 2020 and brought with it a series of challenges for INEGI and its collaborators reminiscent of the 1985 earthquake.

The rapid spread of a deadly virus for which there was no vaccine or even proven effective medicine to treat it posed a high risk to the health of the staff and it was clear that it would soon affect the various activities of the Institute both in its offices and in the field.

In this sense, INEGI implemented an operation to move practically all operations from its labour offices in the country to the homes of its personnel (home-office). With this objective, staff were authorised to take their computer equipment home, and, through the collaboration and communication platform Microsoft Teams, they could hold virtual work meetings. Shifts and security protocols were instituted for people who exceptionally had to attend the facilities. Likewise, disinfectant gel, supervision of medical personnel, as well as cleaning and sanitising measures in the offices were provided. Each administrative unit was responsible for determining and organising, based on its work needs, the implementation of these measures.

By March 23, INEGI was operating almost entirely (with the exception of its field operations) in this working format one week after

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171 At the time of writing (August 2020) several vaccines are at different stages of development, but it is not yet possible to be certain about their effectiveness, let alone know when they would be available.
the first death officially attributed to COVID-19 was recorded in the country (March 18) and one week before the health alert was declared by the General Health Council on March 30, which entailed, among many other measures, the closure of most government offices and the suspension of statistical surveys requiring face-to-face interviews.

INEGI programmes would be affected in different ways. The Population and Housing Census of 2020, the largest operation and the one with the largest number of hired personnel, which had begun on March 2, faced more so towards the end of the operation reluctance to participate in the interviews as the population became aware of the imminence of the pandemic.

However, by March 27, the enumeration stage and the first week of verification were completed, with nearly 95% of the houses being censused. From that date onwards, response was promoted through the Internet or by telephone. Field verification was suspended and would be resumed in July, in accordance with the provisions of the Epidemiological Risk Traffic Light for monitoring COVID-19 in the country’s states, and coming to an end in the third week of August.

The subsequent work was carried out by identifying the residents in the households as of March 15, 2020, the reference date for this census. The date of publication of the results was postponed, in principle, to December 2, 2020.

In view of the impossibility, from March 31 onwards, of continuing the programmes that required field operations and the closure of numerous government offices that provide administrative records, INEGI implemented a strategy that would allow for the greatest possible amount of information, particularly that related to the effects of the pandemic, which became indispensable and urgent for those in charge of public policy in the country in an emergency of this nature. It was also important to ensure the continuity and comparability of the historical series.

In this regard, three lines of action were developed: conducting surveys and collecting administrative records and other infor-
mation via the Internet or telephone; developing new products to measure the effects of the pandemic and postponing programmes that could not be carried out by these means until later this year.

Although INEGI has been using the Internet and telephone service for years to capture data in its censuses and surveys on economic statistics, with the help of the directories produced by the Institute itself which contain prior information on the activity of the establishments and the data for contacting them by these means, household surveys present methodological and operational difficulties for their implementation, among other reasons because of the limited access of households to these means or because INEGI does not have their contact details.

However, as of March 16, work began on studying and designing the possible conversion of surveys that could be carried out by telephone.

At the same time, cooperation efforts began with Mexican institutions (such as Banxico, SAT and the Ministry of Economy) and international institutions - such as the COVID Employment Group of the International Labour Organisation (ILO) - Latin America and the working group formed by UN-OECD-IMF-ECLAC-UNECE - to look at issues such as price quotations and trade balances, among others.

The following is a review of the main measures taken by INEGI to produce timely information during the COVID-19 crisis.

**Sociodemographic information**

*Telephone Survey of Occupation and Employment (ETOE)*

With the abrupt and almost total shutdown of the economy in a few short days, in a country that has no unemployment insurance, understanding the employment situation became of particular importance. Since the National Survey of Occupation and Employment (ENOE) could no longer be conducted in the field, the
designing of a telephone survey that could cover the same topics was decided upon. INEGI used the same conceptual design, questionnaires and procedure as the ENOE, as well as the subsample of homes in this survey for the first quarter of 2020, where there were available telephone contacts of the people to be interviewed.

Although the ETOE presents a different operational strategy from the ENOE and is not strictly comparable, it provides a useful overview of the employment situation in the country as a result of COVID-19.

This survey was first conducted in April 2020 in 14,294 homes and continued in May in 13,884. In its first version, published on June 1, the decreases in labour participation and in the employed population, as well as the increase in under-occupation, stand out. In the case of the labour participation rate, by April it was 47.5% in relation to the population aged 15 and over, 12.3 percentage points lower than in March of the same year, which represents 12 million economically active people less, within just one month, while the under-employed population (employed population who need and are willing to offer more working time) had an increase of 5.9 million people.

The unemployed population reached 2.1 million people, from 3 to 4.7% of the economically active population (EAP) in relation to the previous month.

The presentation of the results of the first Telephone Survey on Occupation and Employment 2020 (CDMX, Mexico, June 1, 2020)

From left to right: Julio Santaella & Edgar Vielma.
In total, the non-occupied population available for work but not actively seeking employment increased from 5.9 million in March to 20 million in April, a population that is considered to be waiting to resume its activities once the social distancing and business closure measures are over.\textsuperscript{172}

The second version, with figures for May, was published on June 30 and, although the results are similar to those of the previous month, changes can be seen in the underemployment rate which increased by 4.5 percentage points to reach 29.9% (variation of 2 million people) and in the temporarily absent employed population with employment ties which decreased by 3.1 million people, while the economic participation rate was 47.4%, practically the same as the previous month (47.5%).

The third version of the ETOE, with timely figures as of June, was published on August 5, 2020. The results show the return of 5.7 million people to the labour market as economically active (4.8 million employed and 901,000 unemployed). There has been a gradual resumption of business operations and companies, with a decrease of 2.4 million temporary absentees with employment ties compared to the previous month, and a return to full-time work, with an increase of 4.4 million employed people. There was also an increase of 3 million in the number of informal workers. The unemployment rate increased from 4.2% in May to 5.5% in June.\textsuperscript{173}

A comparison of the data from the three deliveries of ETOE to date shows the details of the crisis, which has developed dynamically even after the immediate high-impact effects of the epidemic and the establishment of the safe-distancing measures, which have continued to vary considerably from month to month. This highlights the need to obtain reliable information in a timely manner that allows the various authorities of the country to understand the situation and implement public policies addressing this crisis of unexpected proportions.


**Telephone Survey on Consumer Confidence (ETCO)**

This survey was designed in alliance with Banxico to generate information on the population’s degree of satisfaction regarding their economic situation, that of their family and that of the country. Although not strictly comparable with the National Survey on Consumer Confidence (ENCO), the data results in an approximation of the indicators traditionally captured by the latter.

ETCO collects information through telephone interviews with the population aged 18 and over across the urban areas of the 32 states and takes up the 15 questions that make up ENCO to produce the Consumer Confidence Indicator (ICC-ETCO).

The first survey was conducted through 1,135 interviews from April 27 to 30 and was published on May 28, 2020. The ICC-ETCO recorded a balance of 32.2 points in April, 9.9 points lower than the ICC-ENCO of the previous March and 13.3 points lower than this indicator for April 2019.

The second survey took place from May 11 to 29, 2020 with 2,143 interviews and was published on June 23, when the ICC-ETCO recorded a balance of 31.1 points, 1.1 points lower than the previous April and 13.2 points lower than in March 2019.

The third survey, for June, was conducted from June 11 to 30 and published on July 22, 2020. It consisted of 2,605 interviews and the ICC-ETCO balance was of 32 points, 0.9 higher than the previous month and 11.7 points lower than the June 2019 ENCO figure (43.7).174

**Telephone Survey on COVID-19 and the Labour Market (ECOVID-ML)**

It is a survey independent of ENOE and ETOE to provide complementary information on the impact of the pandemic on employment. It takes as a reference the ILO recommendations regarding the priority elements to be maintained during the evolution of this

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virus. Its themes refer to labour actions in times of contingency, mobility of persons, information mechanisms, use of preventive measures and health aspects.

It was held from April 27 to 30, 2020 with a sample size of 28,619 phone numbers and its results were published on July 23. It was estimated that 32.9 million people were employed in April 2020, of which 23.5% worked from home, 30.3% did not work their usual hours, 46.1% saw a decrease in their income and 21.8% were temporarily absent from work while maintaining an employment relationship. Likewise, there were 13.6 million non-employed persons who were available for work but not actively seeking employment; of these, 11.9 million were absent from work as a result of the COVID-19, where 42.3% considered that they would return to their jobs when the contingency was over. In 30.4% of households, one member lost his or her job due to the pandemic.\textsuperscript{175}

**Economic information**

The important development in data collection methods carried out by INEGI in many of its programmes has allowed these to continue despite the restrictions on movement resulting from the pandemic.

In the case of the National Economic Surveys programme, which collects information from just over 32,000 economic units, the internet-based collection of information over the last few years had reached an average of 72% of these, which since the beginning of the health crisis has increased to 80% and measures are being implemented to cover the remaining 20% using e-mail to exchange the questionnaire which is then concluded with a telephone interview.

The staff that collects prices for the CPI is quoting, as of April 1, the baskets assigned weekly by alternative means, such as internet, landline and mobile phone contact, e-mail and platforms for home delivery.

In the case of administrative records, there have generally been no problems, as the providing sources deliver them via the Internet. With regard to the Balance of Trade in Goods, the Working Group on Foreign Trade Statistics (in which Banxico, SAT, the Ministry of Economy and INEGI participate) has been able to continue its work, as the country’s 49 customs offices have continued to operate without interruption and their transactions are recorded electronically.

The processing and analysis of information from the 2019 Economic Censuses was continued in the home-office mode and the results were presented on July 16, 2020 as scheduled.

The SCNM indicators have continued to be generated under the same procedures, the only difference being that they are now performed by staff working from their own homes.

Face-to-face interviews for inbound travellers’ surveys were suspended for the duration of the health emergency.

Several programmes were also initiated to capture information on the effects of the pandemic.

The Survey on the Economic Impact Generated by COVID-19 on Enterprises (ECOVID-IE) was conducted from May 7 to June 12 in 4,920 economic units, covering large companies as well as micro, small and medium-sized enterprises (MIPYMES). The results of this survey were released on July 23. Among them, it is worth mentioning that: 59.6% of the businesses implemented technical stoppages or temporary closures as a preventive measure against the pandemic; 91.3% registered a decrease in their income due to health contingencies; 60.2% implemented operational actions, with home delivery being the most frequently used (45%), followed by special promotions (33.8%), home-office work (32.6%) and internet sales (29.6%); 47% considered that the most necessary policy to support them would be the deferral of payments for services.176

176 Idem.
The National Survey of Funeral Homes due to COVID-19 (ENAF) was carried out from May 25 to June 12 with a sample of 474 companies (out of a framework of 4,125), of which 324 questionnaires with information were obtained. The subject matter consisted of 11 questions. Its publication date was July 23. Among the data obtained, it is worth noting that, on average, the large businesses that had provided 351 funeral services in February increased to 516 in May, while the micro-businesses went from 12 to 16 in the same period; approximately nine out of every 10 economic units made changes to the protocols for handling bodies due to deaths related to COVID-19 in the months of April or May; and 14.6% of the businesses faced shortages of supplies in those months.177

A Business Demographics Study is also being prepared and is planned for September and October 2020 with results at the national and state levels with the aim of understanding the demographic impact of the pandemic on businesses (mortality, births and survival). It would seek to identify the characteristics of operation and financing of the surviving establishments in order to present useful information for decision making and evaluation of economic policies implemented in the context of COVID-19, as well as to learn about the main characteristics of the companies registered in the Mexican Statistical Business Register (RENEM) that closed activities, by size, main economic activity and location.

In addition, the preparation of the Registry of the Automotive Industry of Heavy Vehicles continued with the National Association of Producers of Buses, Trucks and Tractors (ANPACT), producing monthly information 12 to 15 days after the reference month. This information was first published on July 13, 2020 and, together with the Registry of the Light Vehicle Automotive Industry published by INEGI since October 2018, allows for a complete programme of the country’s terminal automotive industry.

Among the new products whose preparation dates back to before the pandemic, but which are useful for analysing its effects, is the Monthly Opportunity Indicator of Manufacturing Activity

177 Idem.
(IMOAM), carried out in coordination with the Federal Electricity Commission (CFE), which was published on May 29. This indicator is calculated from a sample of the largest establishments in the manufacturing sector, which is linked to electricity consumption data at the service (meter) level and complemented with information provided by the National Energy Control Centre (CENACE).

In some established INEGI programmes, applications have been developed to analyse the impact of COVID-19 on the economy. Such is the case of DENUE, which offers maps with layers of information in which companies can be observed by activities classified as essential during the pandemic, and the Input-Output Matrix, where simulators are being generated that allow supply and demand impacts to be modelled in order to observe repercussions on key variables, such as production, added value and jobs.

It has been particularly important, given the severity of the crisis caused by the pandemic, to continue publishing crucial information on its effects on the national economy and how they have occurred, so that the authorities have elements in a timely manner for their economic policy decisions. The Global Indicator of Economic Activity (IGAE) for May was presented according to its calendar on July 24, 2020, and showed a decline in economic activity of -2.6% in real terms compared to the previous month and -21.6% compared to May 2019.178 On July 30 the results of the timely estimate of GDP for the quarter April-June 2020 were published, which show that it fell -17.3% in real terms compared to the previous quarter (January-March) and -18.9% compared to the second quarter of 2019.179

**Government, public security and justice information**

The second quarter undertaking of ENSU 2020 was cancelled. The third quarter questionnaire will include the topics of victimisa-

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tion, robbery and extortion, as well as experiences of corruption with public security authorities that are regularly captured in the second quarter survey, in addition to incorporating questions on situations of domestic violence.

In order to obtain estimates for the first half of 2020 (target for the second quarter survey) the month in which the behaviour occurred will be identified.

In the case of ENVIPE 2020, the survey originally scheduled for March was suspended, being resumed in July once the mitigation and prevention measures for COVID-19 allowed it. The information on the perception of insecurity captured at the time of the interview (as opposed to that related to victimisation which refers to the previous year) will be set according to the new survey period.

In order to contribute with information on aspects related to the pandemic, INEGI structured a programme for the collection of data from public pantheons in metropolitan areas. The subject matter covers: administrative characteristics, installed capacity, assigned personnel, treatment and management of mass graves, number of burials and cremations, expansion of service and perception of increased activity. Its coverage includes 74 metropolitan areas equivalent to 367 municipalities. In June, contact began to be established with the officials and institutions that would provide the information and it was considered, according to the original planning, that the electronic delivery of answered questionnaires would be made to INEGI from August 3 to 7, a date that could vary depending on the resumption of activities of the municipal public administrations.

Information dissemination

INEGI developed a specific page on its website called Perspectiva en cifras, COVID-19 (COVID-19 perspective in numbers) with the aim of consolidating all the information relating to the impact of this crisis in one place. It includes a summary by programme and the special tools and surveys that provide inputs for the analysis of the pandemic in the country.
INEGI. Why INEGI? The saga of a Mexican institution in search of the truth. 2020.
INEGI. Why INEGI? The saga of a Mexican institution in search of the truth. 2020.
THE FUTURE IS NOW, MODERNISING IS AN EVERYDAY TASK

Previous page: The INEGI flag.
10.1. Major challenges and the role of information producing agencies in the future

In order to fully meet its objectives in the future, INEGI is now facing a series of challenges which, although common to all official information production offices in the world, present variations in different countries both in their characteristics and local circumstances and in the degree of effectiveness with which they are resolved. Some of these challenges are former adversaries who have left their mark on all periods of institutionalised official information, while others are of a more novel nature, including some with the potential to substantially alter the paradigms that govern the production of data.

They are all interconnected, feeding back into the complexities of their causes and effects, but also into their solutions. This implies that the resolution, or lack of, to the problems of some affect the attention of others. In some cases, within the same concept, they cover more than one challenge when their amalgamation conveniently allows for their analysis under the same heading. The order of presentation does not imply, in itself, a scale of importance, as it is not possible to dispense with the solution to any of them.

The first two are perennial to any public or private institution and refer to the indispensable resources, which we could call basic, for them to effectively function and fulfil their objectives: financial resources and specialised personnel.
The production of statistical and geographical information, due to its complexity and the variety of topics it addresses, requires resources that allow the organisation of a work programme around multiple activities with both theoretical and technical aspects as well as field operations. Conducting censuses throughout the country, mobilising hundreds of thousands of people, carrying out multiple surveys, preparing national accounts and economic and price indices, as well as measuring the country with the most advanced geographical techniques, entails hiring costs from highly specialised personnel to the large field team made up of interviewers and supervisors, to which must be added all the computer, vehicle and office infrastructure that accompanies this type of operation.

In addition, in many cases, prior planning and action that cannot be limited to just one year is required. These projects also need continuity over time in order to understand their comparability. A population census is not a unique event that a country can afford not to repeat if it seeks to learn not only how many inhabitants it has, but the conditions in which they live. This logic applies to all programmes: without comparability over time, the data loses significance.

Not only does the implementation of traditional projects established in the institution’s programme for years depend on budget availability - even, as in the case of population and housing censuses for more than a century and economic censuses since the 1930s - but also the possibility of investing in new programmes in accordance with the country's requirements, as has been the case with corruption or crime issues. Not having the necessary flexibility to provide resources can severely limit the capacity to produce valuable information in innovative projects such as, for example, the measurement of drug consumption, which is a difficult issue to obtain answers to and for which methodologies are currently being analysed and tested, since it is a relevant source of data for the country's current and future public policies.
Technology is expensive. Mobile electronic devices for a census (180,000 devices for the 2020 Population and Housing Census), even if they mean an economic saving due to the use of paper, still imply a significant expenditure in pesos.

The areas of Statistics and Geography, as we have mentioned, are particularly dynamic in their development both of methodologies and of the use of technologies. An indispensable condition to remain at the forefront in these aspects is the participation of the institution in the multiple programmes that are continuously developed in the main international forums and organisations, whether governmental or private. This implies that specialised INEGI personnel attend meetings abroad, as well as that the Institute, on occasion, takes the lead in some of these programmes and organises expert sessions in Mexico and other countries.

Mexico’s international commitments, such as the *Agenda 2030 for Sustainable Development*, involve a complex effort at the national and global levels for the production of information that serves to integrate the indicators with which the countries’ progress in the agreed upon development areas is measured. The list is long and, although it is sometimes possible to obtain resources from international funds, these are limited and priority is generally given to nations with lower rates of development. In any case, they can only serve in a complementary and minor way to programmes of this type.

In the Mexican federal public sector, financial resources come from the Federal Budget, which is approved annually by the Federal Chamber of Deputies (national), a process in which the Ministry of Finance and Public Credit (SHCP) is responsible for its integration and negotiation with the representatives of the various political parties. It is the SHCP that sets budget ceilings and warns of the risks of possible deficits in the country’s economy.

The allocation of budgetary resources is necessarily a process of competition for scarce resources among a very wide range of government priorities and programmes. A determining factor in obtaining them is the perception held by public policy decision
makers and, in particular, those involved in the allocation of the budget regarding the importance of the information for the country and, above all, for their own requirements.

This perception - or conviction, as the case may be - is sought through the generation and dissemination of quality\(^1\) data and is based on the work carried out by INEGI directly with producers and users of government information, in accordance with its powers under the *Law on the National System of Statistical and Geographical Information (LSNIEG)* as a producer and regulatory and coordinating body of the National System of Statistical and Geographic Information (SNIEG).

For this coordination, the Institute has created 41 specialised technical committees (STCs) on a wide range of integrated social, economic, geographical and environmental issues, and in most cases chaired by representatives of various government institutions (federal, state and municipal), academics and non-governmental organisations (NGOs).

The STCs discuss and analyse INEGI programmes and new information needs, proposals or improvements to measurement instruments, methodologies and indicators. They are chaired by the government institution that is the principal producer or user of the data related to each Committee. Thus, the Government Information STC is chaired by the Head of the Budget Unit of the SHCP, which allows this ministry to obtain first-hand knowledge of the information programmes on government activity of the entire Mexican public sector.

This work is reinforced in the other collective bodies contemplated by the *LSNIEG*, such as the executive committees, which cover the STCs of each subsystem, and the National Advisory Council, made up of the President of the Institute and representatives of the three branches of government and the states.

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Likewise, both the requested budget and the most important programmes of INEGI are presented personally to the most relevant political actors in the country by the President of the Institute.

For this whole process, the Institute combines the element of quality of information with its exclusive subjection to professional criteria for the production of data, as well as its autonomy with respect to the other actors involved in the elaboration and approval of the budget.

A historical perspective of INEGI’s development shows an institution that, from its creation, began to grow with a relatively limited budget, initiating some innovative projects and its decentralisation upon facing the catastrophic circumstance of the 1985 earthquake. The subsequent relocation of its headquarters to Aguascalientes took place in the midst of a national economic crisis, complicating this relocation due to a lack of resources. These finally began to flow in 1989, making it possible to quickly conclude the relocation process and to carry out three large census operations throughout the country from that same year.

The prestige acquired by the results of these censuses and other programmes led to the institution being invited to participate in the Programme for the Certification of Ejido Land Rights and Titling of Urban Plots (PROCEDE) when it could have entered a period of relative budget reduction. By then, INEGI was an institution with the structure and budgetary soundness to support its extensive data generation programme, consolidated before public opinion and public policy decision makers as a recognised actor, crucial for the production of reliable information in the country.

In general terms, INEGI has been able to obtain adequate budgets for its needs over time, permitting the development of its personnel, its physical and technological infrastructure and multiple programmes. However, it has, on occasion, been affected by isolated budget reductions; for example, the 2001 Agricultural Census had to be postponed until 2007 and the one that would have corresponded 10 years later, in 2017, was also not carried out due to budget restrictions, so it was replaced by the National Agricultural
Survey; this was also the case of the 2005 Population and Housing Count, in which budget uncertainty initially led to the suspension and then to the resumption of operations, which created a series of technical problems for its organisation and forced a reduction in scope.

In 2019, budgetary restrictions led INEGI to affect, in principle, 12 information programmes, of which four could finally be carried out with the support of other institutions, while it was not possible to carry out eight national surveys, such as the National Survey on the Consumption of Psychotropic Substances (ECOSUP), planned to be undertaken for the very first time, the National Survey of Micro-enterprises (ENAMIN) and the National Survey of Prison Population (ENPOL), among others.

**ATTRACTING HIGH QUALITY PERSONNEL**

The quality of the human resources working in an institution is a key determining factor in its results.

An organisation with INEGI’s level of specialisation requires personnel with sufficient levels of academic preparation and necessary training to apply its work programmes efficiently and effectively. Adequate conditions for their professional development must be offered, including competitive salaries and other attractive benefits to make a career in the Institute.

Like every employer in Mexico, INEGI faces the shortcomings of an education system that fails to produce enough people trained in highly specialised areas or, in general, academic levels comparable to the most successful education systems. In addition, many

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2 One sample of the weaknesses of the education system is the country’s performance on the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) tests, which measure knowledge and ability in mathematics, reading comprehension and science among 15-year-olds in different countries around the world. Mexico’s performance is significantly lower than the international average; in 2018, 56.2% of Mexican students did not reach the minimum level of competence in mathematics and only 0.5% showed performance that places them at the highest levels. See OECD, *PISA 2018 Results. What Students Know and Can Do* (OECD Publishing, 2019), pp. 145, 212 & 228.
of the activities carried out by the Institute, such as the organisation of census operations, are not taught as such anywhere. This implies that the previous academic preparation must be supplemented internally, which the institution covers through its training programme, as well as the experience acquired in the operation of the programmes.

A particular problem is the shortage of people with advanced knowledge of the English language, the lingua franca usually used in statistical and geographical publications as well as in technical meetings at a global level. Translation services are limited to formal sessions of United Nations (UN) bodies and other institutions, and are only available, on an exceptional basis, at working meetings where, by its very nature, it would be too complicated and expensive to organise providing such services. Although INEGI has a sufficient number of public servants who meet this requirement, the proportion of these is still low given international needs, and therefore a disproportionate amount of work falls on a relatively small number of people.

The INEGI's Professional Career Service establishes procedures for the recruitment of personnel that include, in addition to academic requirements and experience, knowledge tests that are open to anyone who meets them, regardless of whether or not they have previously worked at the Institute. It also establishes procedures for evaluating personnel and rules for their permanence or departure from employment. However, it has not been possible to implement measures such as an agile system of economic recognition based on performance or a scheme of scholarships, either total or complementary, to study in Mexico or abroad.

Along the same vein, the cancellation of benefits, such as health insurance and retirement savings, in addition to the widespread reduction of salaries at various levels of public service, implemented throughout the public sector from 2018 onwards, affects the capacity of public institutions such as INEGI in attracting talent, particularly young people who are planning and considering their long-term institutional development prospects.
This situation becomes particularly acute in highly specialised areas, where salaries in the Mexican private sector or abroad can be adversely competitive for public institutions, as is the case with computer professionals, actuaries and physical-mathematicians, and will be more evident with the newer professions that will be required in the future, such as Big Data analysts, data sequencers and trained technologists, to mention a few examples.3

NEW DEMANDS

The information requirements of different users are day by day becoming increasingly more varied and unique.

The need for more detailed and specific statistical and geographical data focused on small areas4 in order to obtain a more complete analysis of economic and social phenomena present a challenge, both from a methodological and cost perspective, for information producing agencies.5

Globalisation, resulting from the increasing interrelationship of nations, brings not only the need to compare statistics, but also to address new and more complex issues that are not limited in their effects to the political borders of countries, for example, global value chains, transnational crime, as well as epidemics and natural phenomena.6

As we have seen, demands for information on the occasion of the indicators for the Agenda 2030 for Sustainable Development,

4 Population subsets smaller than those considered in the original design of a probability sample survey may be small geographic areas or thematic domains not explicitly considered (INEGI, “Nota metodológica. Prevalencia de obesidad, hipertensión y diabetes para los municipios de México 2018. Estimación para áreas pequeñas”, Investigación, Modelos de áreas pequeñas, p. 5).
agreed by the countries in the UN, probably exceed the current information systems worldwide including the most advanced nations, as is the case of Mexico which, however, starts in a privileged position to reach the indicated goals.

TIME AND METHODOLOGICAL CONSTRAINTS

In the case of surveys and censuses, population response rates are declining in many countries around the world. In Mexico, problems are faced in this regard due to the insecurity present in a large part of the national territory. In particular, questions about income or crime can not only lead to low response rates, but also put the safety of the interviewers at risk. There have been cases of threats in some regions of the country that have forced a shift in the conducting of surveys to less conflictive areas. In operations, especially national ones, INEGI widely disseminates security measures for the identification of all interviewers who must always wear an official uniform and have a visible ID card, in addition to providing their name, which can be verified on telephone lines made available to the public.

Statistical information is continuously challenged by the time taken for collecting, processing and making it available to society, especially to public and private decision makers. The challenge is composed of the need for this information to be complete, specific and of the highest quality and ideally to be in coordination with the users so it can be adjusted to their needs. Henceforth, the UN has set the immense objective of eventually being able to provide information in real time.

The responses to these challenges include the use of new combinations of traditional methods, as has been the case with INEGI’s government censuses, which in practice are censuses

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of administrative records, the georeferencing of information and the adoption of technologies that allow savings, of both time and cost, with better coverage and data recording.

PUBLIC SCEPTICISM

In recent years, particularly in advanced Western societies, although not exclusive to them, there has been a phenomenon of mistrust of political elites by a section of the population, reflected in a scepticism about the technical knowledge and statistics handled by governments. It has been described as an anti-intellectual and post-truth era.8

Perhaps never better expressed this sentiment than in an incident that occurred during a public meeting to discuss the 2016 referendum on the UK’s exit from the European Union (Brexit). On that occasion, when Professor Anand Menon, expert on Europe at King’s College London, invited the audience to imagine the possible impact of Brexit on the country’s Gross Domestic Product (GDP), someone in the audience shouted "That’s your bloody GDP, not ours!". This comment, which has become legendary, is unfortunately representative of the feeling of a section of society in some countries, which reflects, to some degree, not only citizens’ distrust of information, but the loss of contact of the elite and experts with the population.9

To counteract their effects, statistical and geographical offices need to establish measures to approach citizens and incorporate their needs, and themselves, into the information production process from the initial planning stage. It is particularly

important to convey to society in general the importance of information for their daily lives and how it contributes to their well-being, all of this supported by the publication of methodologies, metadata and quality indicators on the various programmes both in a technical manner and accessible to the layman.

Through its website, INEGI makes all the information it produces available, in addition to the measures for approaching and consulting with specialised users that have been established for all the Information of National Interest (INI) programmes. In its dissemination strategy, products have been developed aimed at various sectors of the population, such as women, young people, students, workers, entrepreneurs and others.

Census promotion campaigns are directed, as the case may be, to the entire population or to the entrepreneurs of the country where, together with the invitation to complete the questionnaire, emphasis is placed on the advantages of the future use of this information for the well-being of individuals or companies.

THE TECHNOLOGICAL CHALLENGE

The technological explosion of the final decades of the last century, resulting from the adoption of computers and the Internet, as well as from the transformation of the use of analogical to digital information as a daily work tool, already seems to be ancient history compared to the vertiginousness of the changes being experienced both in production and in the volume of data available as has so far been the case in the 21st century.

Previous developments in the 20th century involved the acquisition of equipment and training of staff and saw substantial improvements in information production. The current advances are not limited to the use and adaptation of better work instruments but also have the potential to alter the paradigms we know about data generation and even question the relevance of traditional statistical and geographic agencies, as we will see in the case of Big Data.
Constant and permanent change has become the new norm in the life of information-producing agencies, something that should be foreseen and considered in their long-term budgets, in the recruitment and training of their staff and in the permanent review of the quality of their processes.

**BIG DATA**

As a result of the technological advances of recent years, what has been called Big Data may be the most disruptive factor for the way information is produced in the future. It is a term used in its true meaning in many languages, but it can also be called mass data; referring to the enormous amount of digital information generated by information and communication technologies (ICT). It refers to data sets or combinations of data sets, whose size (volume), complexity (variety) and speed of growth (velocity) make it difficult to capture, manage, process or analyse using conventional technologies and tools. There is no agreement on the exact size they should be, but most practitioners refer to sets ranging from 30-50 Terabytes ($10^{12}$) to several Petabytes ($10^{15}$).10

Certainly, it fits the definition of a phenomenon as a fact or event that happens in society or in Nature, especially one that is not completely understood.11 Like any new technology, it is a work in progress.

Its complexity derives from the unstructured nature of much of the data generated by new technologies: web-logs, radio frequency identifiers (RFID), sensors in devices, internet searches, social networks (such as Facebook and Twitter), laptops, smartphones, GPS, call centre records, etc.

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“THE POSSIBILITIES OF OBTAINING INFORMATION THROUGH BIG DATA ARE UNLIMITED.”

The possibilities of obtaining information through Big Data are unlimited. Just some of the early examples identified include the study of product and service prices, market research, job vacancies, the use of social networks and the possibility of building mood indices. In fact, "... there is almost no limit to what you can learn about human nature from Big Data, as long as you ask the right questions...".

However, it is also important to consider its above-mentioned statistical limitations, in that the information obtained is not the result of statistical processes as such, and therefore does not conform to methodologies, classifications and definitions (elements and factors guaranteeing the quality of statistics), making it difficult to harmonise and present it in accordance with existing statistical structures.

Despite the volume of information handled, Big Data, as it does not contain all the units of the target population (a characteristic that it shares with all the sources of information on the Internet) can only be considered as a sample, as it does not cover a universe. Likewise, as this sample is the result of a process of self-selection, which leaves the decision to provide information to individuals or entities, it is not of a probabilistic nature, unlike official statistics which are based on probabilistic selection mechanisms, as is the case with surveys to guarantee their representativeness.

Furthermore, it is not considered that complex aggregates, such as GDP or consumer price indices (which seek to measure na-

14 Maciej Beresewicz, “A two-step procedure to measure representativeness of Internet data sources”, p. 476.
tional macroeconomic indicators), can be substituted by sources of Big Data. Finally, it presents fundamental legal problems with regard to data security and confidentiality, privacy, information ownership,\textsuperscript{15} etc., which can have repercussions on democracy and politics, as well as human rights, as we will see later.

In light of these limitations of a methodological nature, when regarding the production of statistical information that meets the technical requirements to be considered as such, the potential offered by Big Data for the generation of statistical information is clear, not only because of the large volume of data to which it gives access, but also because - as Walter Rademacher states - , among other aspects: the speed and frequency of information dissemination, its capacity to respond to specific user requests, the reduction in the burden of response placed on individuals and businesses with the consequent decrease in non-response, the reduction in production costs and the improvement of existing measurements, the development of new indicators and new fields of research.\textsuperscript{16}

The development of the technologies that support Big Data is dynamic and continuous, as is the sociological aspect of using them both to extract and to provide information on multiple aspects of human activity and relationships through a wide variety of media.

INEGI’s Directorate General for Integration, Analysis and Research, then led by Enrique Ordaz, began working with Big Data in 2014. Through the research area, headed by Gerardo Leyva, a programme has been developed using information from Twitter to explore and obtain data on the subjective well-being of individuals with the aim of automatically measuring and reporting the mood of the tweeters in the country.

The Institute has taken daily measurements since 2016 using more than 300 million tweets, in which it is possible to observe the

\textsuperscript{15} Ibid, p. 121.
effect of political, sporting, artistic, natural disasters and other relatively important events on the mood of the tweeters in the country. Work is also being done on projects using Big Data covering issues such as domestic tourism, mental health, mobility, consumer confidence, insecurity, electricity consumption and natural disasters.¹⁷

**QUO VADIS, BIG DATA?**

Where is the revolution that Big Data has started in the collection, production and use of data taking us?

As we have seen, official agencies that produce statistical and geographical information face a complicated technical challenge on how to take advantage of Big Data to carry out their work, as handling enormous volumes of data requires technology, equipment, software processes and specialised personnel, as well as the adaptation of this type of information to standards guaranteeing its quality.

Its resolution involves the study and research of the different problems it presents and, above all, direct participation in the evolution and development of multiple programmes to produce information from Big Data, accompanied by the implied costs of such an investment.

However, regardless of how these technical problems are resolved, the trend is clear that the capacity and sophistication of the handling of Big Data will continue to increase exponentially. This leads us to raise a series of questions that go to the *raison d’être* of the official production of information.

In essence, this is a public asset, which means that it belongs to all members of a society. It derives from the principles

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of equality before the law and democratic participation in a country’s political processes.

This is why the public information service must be provided by the State as the representative of the interests of the community as a whole, in accordance with a series of legal provisions that guarantee compliance with these principles and, at the same time, provide adequate governance to achieve their realisation in an efficient manner.

Being a public asset implies that it must be made available to society in a timely, general and free manner, and that no one can limit or exclude its members from this right, be it the State, the production agency itself or a private interest. In other words, no one can appropriate information to the exclusion of others.

This is also why the state agency responsible for the production of information must be subject to quality control standards that enable it to offer such information in a way that is truthful and useful to society, as well as a legal status guaranteeing its independence and the rights of users to this and the confidentiality of their data.

These principles and concepts in democratic societies are formulated through laws, professional codes of ethics and, in the case of statistics, the UN-approved Fundamental Principles of Official Statistics (which INEGI also applies to geographical information), which some authors group under the generic niche of information governance. In addition, public confidence in official information is derived from and sustained by all of them.

The growing volume of available information, the development of technologies for the obtaining and management of it, as well as the excessive growth of companies considered data giants (such as Alphabet, Amazon, Apple, Microsoft, Facebook, Baidu

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The saga of a Mexican institution in search of the truth

and Tencent), means that from now on a series of questions must be asked regarding who is going to produce information in the future and, above all, who is going to be able to use and control it.

These companies seem to have entered into a race for data with no final goal, which in its ambitions would not envy the arms race of the Cold War. In addition to the problems described above, we should also include the instances of non- legitimate political uses of information that have been put forward in some countries to influence, through various means, elections in favour or against certain candidates through the manipulation of private data.

The key question, following Harari, can be summarised as: who will own the information? How such ownership is regulated will have far-reaching implications for human relations at both national and international levels, especially if this author’s prophecy that the flow of information will replace machines and factories (which, in turn, previously displaced land) as the most important economic asset of the future is fulfilled in the 21st century. A prophecy that, from a certain point of view, needs no magic or fortune tellers to become a reality, perhaps more probably in combination with other assets, which does not imply the diminishing of its importance in any way.

The implications of how these issues are resolved for national information production systems will determine the role of official data producing agencies in the future but, above all, may affect something more important, which is the rights of society vis-à-vis the interests of those who produce and/or control the information.

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19 The first four have already reached a market value of US$1 trillion. Facebook only reaches 620 billion dollars (The Economist, “How to make sense of the latest tech surge”, The Economist, Leaders, February 20, 2020).


21 Idem.

22 Idem.
The discussion of the future in these terms is just beginning.\textsuperscript{23} It requires the involvement of official statisticians and geographers both individually and officially from the agencies they represent, from academics, data scientists, international organisations led by the UN, professional associations such as the International Statistical Institute (ISI) and the International Association for Official Statistics (IAOS), and from the countries' own political bodies, as well as from the world’s leading data companies.\textsuperscript{24}

The United Nations World Data Forum plays an important role in this inherently international process of discussion and cooperation that brings together nations, experts and companies to eventually define information governance in the world. INEGI actively participates in this Forum.

The great challenge of this discussion will be to establish governance that guarantees the right of individuals to information and to the protection of their personal data, and that regulates the activities of the producers of information, including the flow of data that is handled, as well as their relationship with the State, official data generating agencies and international organisations.

Due to the very complexity and nature of the phenomenon, which cannot be contained within national borders, it will be necessary, in addition to domestic laws, to regulate this governance by means of international legislation through treaties and multilateral agreements agreed upon within the UN, which must provide for the necessary monitoring and sanctioning measures to ensure compliance. Issues such as the collection of taxes and the application of sanctions to these companies are particularly complex both in terms of defining their extent and the effectiveness of their application.\textsuperscript{25}

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\textsuperscript{25} The Economist, “How to make sense of the latest tech surge”.

\textbf{THE FUTURE IS NOW, MODERNISING IS AN EVERYDAY TASK}
As you can see, it is not just any challenge and is not limited to the world of data. It can be an unlimited source of conflict, and its resolution, or lack of therein, will determine the shape of the societies of the future.

DATA STEWARDSHIP

This is an issue that is currently being discussed within the United Nations Statistical Commission (UNSC)\(^\text{26}\) and in other forums, and for which there is not yet a consensus in the international statistical community on its scope. It has been raised in the context of the need to maintain and develop the role and functions of official statistics in the new information ecosystem that is forming in the world as a result of technological advances and the appearance of new data-producing agents.

It implies the evolution of statistical agencies from their current role as producers to become, in addition, curators and custodians of information\(^\text{27}\), as well as providers of services in the economies of the future that are envisioned to be largely driven by data\(^\text{28}\).

There is a consensus that this new role will aim to make information available to all citizens of a country in an open and effective manner, and that this will encompass all information produced by governments, not just that produced by statistical agencies. This would imply assigning them the function of establishing standards and guidelines for the collection, administration and use of information for practically all government units at their different levels (national, state, municipal).

Different countries are approaching this issue from different perspectives; New Zealand stands out, which has created the of-


\(^{27}\) Idem.

\(^{28}\) Yuval N. Harari, 21 Lecciones para el siglo XXI, p. 77.
office of the Government Chief Data Steward (GCDS), with the aim of building the framework that allows the government to better manage and disseminate information about its country. The executive director of the New Zealand National Statistics Office, Liz MacPherson, was appointed in 2019, in addition to her other position, as head of this office. The goal of the GCDS is to achieve better data management in coordination with different government units through common standards for discovering, collecting, managing, sharing and using data.29

The other case is INEGI which, through its legal functions of coordination and regulation of the SNIEG (which covers the entire universe of information generating government units), is in a position to directly participate in the development of a scheme of this type (of which it in fact exercises some of the functions proposed) and has worked closely with the Presidency of the Republic in previous initiatives on open data policies (2012-2018).

While it is possible to visualise a consensus on the objectives and functions that this scheme is intended to cover in terms of the management of government data from the same country, the discussion is still in its infancy regarding the use of information from non-governmental sources, a topic that was outlined earlier when discussing the future of Big Data. In fact, this is one of the key issues in the future governance of information at both the national and international levels, as guaranteeing the availability of information to all individuals - and it remains to be determined which, and to what extent - necessarily requires from the official information producing agencies (either in its current version or in a future version).

As we have said, perhaps the most important future challenge facing the international statistical community will be to build global statistical governance in consensus with national governments, international organisations and large data corporations.

The role of the national statistical offices (NSOs) will be crucial in this context, as they will be responsible for the eventual administration of the system to be agreed. Even earlier, in any negotiations (requiring the convening of all these actors), the statistical agencies and the UNSC could play a crucial role as honest brokers between the interests of the government and those of the large corporations. However, to prove this neutrality, the local independence of the NSOs should first be guaranteed. The lack of this autonomy can be an obstacle or a limitation both to achieving general agreements and to the role of NSOs in the scheme of future data governance.

ANSWERS. THE LONG-STANDING BATTLE FOR QUALITY

INEGI faces the challenges posed in various ways. An initial starting point has been to include in the internal discussion at the highest executive levels the analysis of the possible demands of the future and to promote its research and the development of pilot programmes on issues that involve the use of Big Data. Participation in forums and international cooperation projects on these issues has also played a relevant role.

Of particular importance has been the review of institutional programmes. In this sense, INEGI draws on several evaluations by international organisations regarding the quality of their programmes. In some cases, it has even become a promoter of these at an international level, as is the case of the so-called peer review carried out by the OECD to the NSOs of its member countries in which INEGI also offered to be the first statistical agency to be evaluated.

Finally, in recent years the Institute has been developing a Permanent Quality Programme which, as its name indicates, is the mechanism through which it seeks to ensure that all its programmes conform to the highest standards in accordance with international theory and practice through the implementation and review of protocols covering all stages of information production, from planning to dissemination and safeguarding.
We will now look at some examples of the main international evaluations carried out at INEGI and then conclude this chapter with a look at the Permanent Quality Programme.

10.2. International evaluations

Through the intense international programme developed by INEGI since its foundation, in practice it has subjected its programmes to the scrutiny of statistical and geographical offices around the world, as well as of the main international organisations. This has been a process of learning and continuous improvement. In most cases, it has been a matter of common efforts by countries to improve the production of information on particular topics.

This process, which has taken place on a continuous basis, has been channelled both through multilateral projects promoted within international organisations - for example, the UN, OECD, UN Office on Drugs and Crime (UNODC), International Monetary Fund (IMF) and World Bank - and through bilateral projects with other countries.

Thus, from the first years of the institution, work continued on the previously initiated project to improve national accounts with the UN and the Economic Commission for Latin America and the Caribbean (ECLAC) which, as we have seen, would soon be reinforced with experts from the United Nations Statistics Division (UNSD) to work on specific aspects of GDP and other issues.

Mexico’s and INEGI’s membership to the OECD has brought about intense participation in its programmes to promote statistical production involving a permanent evaluation of the programmes of each member state. We have also narrated the meetings, first with the United States of America (USA), and then with this country and Canada, to understand the functioning of the statistical systems of each one in order to prepare the cooperation in this matter on the occasion of the North American Free Trade Agreement (NAFTA), the audit of national accounts carried out by the World Bank in 1995.
and the joint work with the UNODC for the development of the statistics on crime and government (where the OECD also participated) at the global level, to mention only a few.

All these programmes and the many more referred to throughout this narrative have in fact resulted, among other objectives, in both internal and external evaluation.

INEGI has also participated in various formally structured reviews with the main objective of carrying out an evaluation of the functioning of certain institutional programmes.

THE INTERNATIONAL MONETARY FUND

As mentioned above (Chapter 5, Section 5.1), collaboration on national statistics assessment programmes with the IMF began in 1995. On that occasion, a review of dissemination policies was carried out which noted the then significant progress in the use of the Internet to provide information to users.

Since 1996, INEGI has subscribed to the Special Data Dissemination Standard (SDDS) used by the IMF. As of March 1998, it began publishing its metadata in the Fund's own Dissemination Standards Bulletin.

The IMF prepares so-called Reports on the Observance of Standards and Codes (ROSCs) with the aim of assessing macroeconomic statistics in the regular consultation it holds with its member countries. These are prepared with reference to compliance with the SDDS and are complemented by an assessment of the quality of the information based on the Data Quality Assessment Framework (DQAF) which sets out detailed guidelines on internationally accepted practices in statistics, ranging from their governance by the information producing agencies to the generation of specific data sets.

In 2013, the Fund conducted ROSC No. 13/329 for Mexico on the consumer price (CPI) and producer price indices (PPI)
and, in 2015, ROSC No. 15/176 on the Mexican System of National Accounts (SCNM). Both reports, in addition to verifying INEGI's compliance with the specifications on coverage, periodicity and timeliness of the information, as well as the early dissemination of the data publication schedule, provide a detailed analysis of practically all aspects of governance and technical production of the data. They offered opinions and suggestions on specific topics which were, in turn, jointly examined by the responsible national institution, in this case INEGI. The agreed responses and actions were included in the ROSCs, which are published in full on the Institute's website, where they can be consulted under the Transparency heading.30

The ROSC 2013 refers, in particular, to the process of transferring responsibility for the measurement of price indices from the Bank of Mexico (Banxico) to INEGI, classified as exceptionally successful, highlighting the institutional, conceptual and methodological soundness of its data sources.31 Recommendations concern the use of annual surveys, coverage of small rural and urban areas (CPI), as well as the inclusion of secondary products in PPI data sets.32

The ROSC 2015 takes up the IMF's 2010 assessment ex ante of national accounts in the context of the start of the autonomous INEGI. It analyses the progress reported over the previous five years in terms of institutional coordination and the coverage and accessibility of information through the improvement of the institutional website and user consultation. The general recommendations were to strengthen inter-institutional coordination with the government's financial areas in the information reconciliation processes in order to resolve possible discrepancies, as well as a series of specific technical suggestions which were included in the respective ROSC with the corresponding institutional responses and measures.33

On the occasion of the ROSC 2015 regarding SCNM, the IMF mission conducted a survey among users of national accounts statistics to obtain their views on the quality of these statistics, involving representatives of the private and banking sector, as well as consultants, academic institutions and government agencies. 79% of respondents considered the country’s statistics to be better than those of other countries in the region and 8% rated them at the same level, while 88% rated their coverage as satisfactory.34

OPEN DATA WATCH

Open Data Watch is an international non-governmental, non-profit organisation working at the intersection of official statistics and open data. Founded in 2013, it has three main areas of action: policy advice, data support and monitoring. It works in coordination with multiple international agencies and national governments, in addition to its partnership with the Global Partnership for Sustainable Development Data (GPSDD) and Statistics for Development in the 21st Century (Paris21), as well as the Data 2x technical and advocacy collaborative platform. One of its founding directors is Misha Belkindas, currently the President-Elect of IAOS (2019-2021).

Its Open Data Inventory (ODIN) produces annual assessments of the coverage and openness of the statistics available on the websites of the NSOs, which is extended to the pages managed by other government units if they have access through the NSOs' own website.35

Under three statistical headings (social, economic and environmental), ODIN evaluates 21 categories of information36 in relation to 10 elements that must be satisfied by each of these, such as:

35 Open Data Watch, “Open Data Inventory - ODIN”, Monitoring.
36 There were originally 20 (including topics such as health statistics, education, poverty, national accounts, employment, energy use, pollution, etc.); in 2017 the category of crime and justice was added.
availability of indicators and disaggregated data, time of coverage (information available in the last five or 10 years), geography (levels of administration covered, national or state), download format (electronic reading, free or non-free software, mass and specific data download), publication of metadata and licensing terms and use of the information. Each category specifies the minimum representative indicators, as well as their level of disaggregation. The assessment is expressed by scores 0-100 for coverage and openness with a total result called ODIN Score.

INEGI has been evaluated annually since 2015 when the ODIN began to be developed. In that year, the statistical agencies of 125 countries at low and medium levels of development were reviewed. The Institute achieved the highest results with 68 points on the global ODIN Score.

As of 2016, 51 countries were added, including those at the highest level of development, bringing the total to 173 once Afghanistan, Iran and Sudan were removed because their statistical agencies’ websites were not functioning correctly. The Institute maintained its overall score almost unchanged (67), with scores of 55 for social statistics, 80 for economic statistics and 67 for environment, compared to world averages of 38, 48 and 30, respectively. Its position in 16th place worldwide was on a par with that of the NSOs of the most advanced countries while maintaining its leadership among the developing nations. In subsequent years (2017 and 2018), the results have remained in the same ranges (71 and 69, respectively) although the position in the hierarchy has varied relatively (9 and 22) due to developments in other countries and some modifications to the assessment methodology.

These evaluations are available on the INEGI\textsuperscript{37} and Open Data Watch websites.

\textsuperscript{37} INEGI, “Revisión por parte de organizaciones internacionales”, Transparencia.
From November 2015, the OECD adopts the so-called *OECD Council Recommendation on Good Statistical Practice*, which is sponsored by the OECD’s Committee on Statistics and Statistical Policy (CSSP) composed of heads of statistical offices of member countries, Eurostat and the OECD itself and in which, as we have seen, INEGI has participated intensely over the last decade.

The *Recommendation* was drawn up by a task force comprising Canada, Israel, Italy, Japan, Mexico, Norway and Eurostat with the support of the OECD Directorate for Statistics headed by Martine Durand. Its aim is to promote the development of quality statistics and to provide a tool for their evaluation. The OECD Directorate for Statistics supports countries in their implementation and in the preparation of evaluation reports.

It contains 12 specific guidelines (or recommendations) on four aspects: institutional, legal and resource requirements; rigour of methods, robustness of data production, dissemination and access processes and the quality of official statistics; the existence of a coordinating institution for the national statistical system and international cooperation; and preparation for future development, adoption of new methods, alternative sources of information and other innovative practices.

The guidelines constitute a set of good practices based on national and international recommendations, in particular the Fundamental Principles for Official Statistics and guidelines for their implementation, the Special Data Dissemination Standard, the European Code of Practice and the experience of the OECD itself, among others.

OECD member countries and some external countries (such as Argentina, Colombia, Lithuania and Peru) have signed the *Recommendation* and are participating in its evaluation, which can be conducted in three formats: country self-assessment based on a list of good practices, self-assessment with evidence of implementation, and third-party assessment.
tation, and peer review by the CSSP with support from the OECD Directorate for Statistics. The latter is carried out at the request of participating nations.

Mexico, which had been an active promoter of the development of the Recommendation, was the first country to ask to be evaluated by its peers under this scheme. A team composed of Anil Arora, President (Chief Statistician) of Statistics Canada; Markus Schwyn, Senior Officer of the Swiss Federal Statistical Office; Paul Schreyer, Simon Scott and Julien Dupont, Deputy Director, Advisor and Statistical Analyst, respectively, of the OECD Statistics Directorate, conducted the assessment in 2017-2018. In addition to INEGI, Banxico was included in the evaluation for economic and financial information and the SHCP for public finance and public debt. The three institutions also answered the Recommendation’s self-assessment questionnaire.

The main objective of the evaluation was to propose recommendations for the improvement of the National System of Statistical and Geographical Information (SNIEG). At the same time, it sought to identify practices useful to other countries as a secondary objective.

The review team’s general considerations recognised that the country has a "... highly developed legal and institutional framework for the production of official statistics with significant checks and balances to ensure professional independence [...] as well as the integrity of its statistical output..."38

The overall evaluation emphasised the existence of mechanisms for the reviewing and improving statistical quality through the standardisation of processes within the framework of the General Statistical Business Process Model (GSBPM) and INEGI’s quality programme. It also acknowledged the data protection policy and procedures and the extensive dissemination programme. It

highlighted the participation in various international assessments and forums, as well as the cooperation and technical assistance with other countries.

The review team concluded that "... in general, Mexico is in high compliance with the Recommendation on Good Statistical Practice..." and indicated that the suggestions for improvements it made were "... largely marginal...".

The recommendations cover a wide range of aspects useful for improving the activities of INEGI and for the coordination and development of the SNIEG. They emphasize the need to obtain better reporting from the State units forming part of the SNIEG on the federal resources they receive for statistical activities and the adoption of advance schedules for the publication of information by those that have not yet done so. A recommended point is the development of human resources in relation to their generational renewal and to the skills required in the future. These and other suggestions, as well as the institutional responses on immediate and medium-term measures that are being carried out and that will be reflected in the annual programmes of the SNIEG and in the next National Programme of Statistics and Geography, are available and can be consulted in detail on the websites of INEGI (under the heading of Transparency/International Assessments) and the OECD.

The report mentions some aspects considered to be of potential interest to other countries, in particular the provisions for ensuring the statistical independence of the institutions, the confidentiality and data protection for respondents, as well as the standard process for the use of administrative records that is applied throughout the SNIEG as a general model for their use, review and training. It also mentions products such as the use of Twitter, the Digital Map of Mexico, the Gender Atlas, as well as the capacity to produce block-level maps of damage resulting from natural disasters, the ex-

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39 Idem.
40 Ibid., pp. 2-4.
existence of a research area and the usefulness of the synergy of statistics and geography to take advantage of Big Data opportunities.\textsuperscript{41}

The task force also issued a recommendation to CSSP member countries that speak one of the languages of Latin America to intensify their capacity building assistance programmes in the region and advised them to consult INEGI when contemplating or planning these programmes.\textsuperscript{42}

THE WORLD BANK INDICATOR OF STATISTICAL CAPACITY

This indicator examines the statistical capacity of more than 140 developing countries. It considers three dimensions: statistical methodology, information sources, and timeliness. For each dimension, countries are scored against specific criteria using information from the World Bank itself and institutions such as the IMF, the UN, the UN Educational, Scientific and Cultural Organisation (UNESCO) and the World Health Organisation (WHO). The assessment scale ranges from 0 to 100, with the latter score indicating compliance with all criteria.

The statistical methodology dimension measures a country's ability to observe internationally recommended standards and methods. The information sources dimension reflects whether a nation conducts its data collection activities according to the internationally recommended periodicity and the availability and quality of information from administrative records. The periodicity and timeliness dimension analyses the availability and regularity of 10 socio-economic indicators.

Although it is not an exclusive evaluation of INEGI's statistical production capacity, as it also includes various entities of the Federal Public Administration (APF), it is a relevant evaluation of the Institute's performance, due to the fact that it is the produc-

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\textsuperscript{41} Ibid., p. 5.
\textsuperscript{42} Idem.
\end{flushleft}
er of the largest proportion of the Indicator’s target information, in addition to being the coordinator of the National System of Statistical and Geographical Information.

In the most recent publication of the Indicator in 2019, Mexico obtained the best score among all the developing countries evaluated: 93 points in total, a result of being rated with the maximum of 100 in the dimensions of both methodology and periodicity and timeliness, and with 80 in information sources. The average for these countries was a total of 71 and, respectively, 62, 90 and 62 for each dimension.

This information is available on the World Bank website under the heading *Statistical Capacity Index-World Bank*.

10.3. Permanent Quality Programme

The production of quality information is the basic condition that justifies INEGI’s *raison d’être*, as its usefulness to society and governments will be judged by this quality.

The aim of achieving quality measurements in both statistical and geographical programmes has been a constant in the history of the Institute. The methodologies and practices developed, in Mexico and abroad, in both subjects contemplate detailed requirements that must be strictly complied with in order to obtain the desired results. In this way, traditionally in each programme the technical and logistical requirements have been established to fulfil its objectives, which in turn contemplate supervision and follow-up measures, as well as the review of its results and of operations in general. As we have seen, INEGI has submitted its programmes to international scrutiny, either through cooperation schemes with its counterparts in other nations or under specific evaluations of their quality and their observance of practices globally recognised as the most advanced in each field.
It is from 2013 that an internal analysis on the adoption of a quality control programme throughout the institution is initiated as a coordinated effort between its administrative units (AUs).

Previous experiences at INEGI were reviewed, dating, as we have seen, from 1995, when the Institute became one of the first Mexican public institutions to explore a project of this type. Likewise, the efforts developed in the following years both internally and in projects promoted by the APF as a whole were studied, especially for the adoption of ISO standards (acronym of the International Organisation for Standardisation) and other quality systems. Similarly, the theory and practice of programmes of this type that originated in private industry and acquired particular relevance due to the influence of the American statistician W. Edwards Deming on the transformation of Japanese industry in the second half of the 20th century was reviewed.

A decision was made to integrate, as a priority, a Permanent Quality Programme that would be transversal to all the activities of the institution and would respond to the particularities and needs of the production of statistical and geographical information. The goal was set to achieve and ensure the highest internationally recognised standards of quality in both disciplines.

This programme, in turn, used the most advanced concepts in quality assurance and aimed to be adopted in the regular practice of the various functions carried out by the Institute. In particular, it was sought to avoid being seen as additional and separate from each of the other statistical and geographical programmes, but rather as part of them, a prerequisite for achieving its ultimate goal: that quality is permanently reflected in the results of each of these programmes.

The Governing Board of the Institute, in its session of December 9, 2014, approved the *Standard for Quality Assurance of...*
The Standard establishes a series of mandatory provisions for all INEGI administrative units to guarantee the quality, relevance, coherence, comparability, truthfulness, timeliness, accessibility, transparency, objectivity and independence of the information produced (Articles 1 and 2).

The guidelines for quality assurance concern the management of the institutional environment and of statistical and geographical processes and products (Article 3).

It recognises and draws on the Fundamental Principles of Official Statistics as well as international practices of the most prestigious institutions in the field - UNSD, Eurostat, OECD, United Nations Economic Commission for Europe (UNECE), IMF, ECLAC, ISO, etc. - and defines quality as the degree to which a set of inherent characteristics of processes and products meets certain attributes (Article 4).

In order to ensure professional and technical independence, it assigns the AUs responsibility for deciding on statistical and geographical methods, standards and procedures, as well as on the content and timing of information dissemination in accordance with best national and international practices and the regulations approved by the Governing Board (Article 7).

It establishes the obligation of the AUs to have a formal quality assurance system, as well as to develop procedures for the planning and monitoring of the quality of the production process and the dissemination of information, for regularly assessing the quality of products and for promoting a quality culture in general (Article 10).

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43 INEGI, Norma para el Aseguramiento de la Calidad de la Información Estadística y Geográfica del Instituto Nacional de Estadística y Geografía, Normateca institucional, December 2014 (Updated in January 2015).
The measures to be observed by the AUs include the documentation of all the stages involved in production and dissemination, the establishment of indicators to measure compliance with the Standard, the generation of quality reports, as well as performance pertaining to evaluations of the Standard through self-assessment, peer review, auditing and certification (Article 42).

In order to implement the programme, the Standard creates a Quality Assurance Committee (CoAC) whose objectives are to issue the institutional quality policy, establish the normative and operational bases for the operation of the Institutional Management System, coordinate the Annual Institutional Quality Assurance Programme (PAACI) to be developed by the AUs and, in general, promote a culture of quality across the Institute (Article 49).

The CoAC is made up of the President of INEGI, who presides over it, who may be replaced by a Vice-President of the Governing Board, and as Technical Secretary the head of the Directorate General for Integration, Analysis and Research, with the heads of the AUs at the central level of INEGI acting as members.

The Committee was set up in February 2015. Its first goals were to carry out an initial diagnosis and define the conceptual and operational bases of quality assurance, as well as to develop evaluation guidelines, which would be reflected in three manuals published that same year and in the preparation with the administrative units of PAACI. 44

The three documents that were issued constitute the guiding principles of the Permanent Quality Programme:


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45 Compilation of standards and guidelines in Mexican public administration.
lishes the integration, operation, organisation, attributes and responsibilities of the members of the Committee.\textsuperscript{46}

2. The \textit{Conceptual Framework for Quality Assurance of Statistical and Geographic Information}, published in the \textit{Normateca} on July 3, 2015, summarises the regulatory framework and presents a comprehensive scheme for quality assurance under four elements: satisfaction of the users' needs (central axis); institutional quality policy that establishes dimensions, principles and guidelines for the conceptualisation and measurement of quality; institutional quality management system, which indicates the measures, mechanisms and activities to manage quality assurance; and projects to improve INEGI's operation, which cover organisational culture and structure, planning and leadership, human, financial, material and computer resources, as well as operational procedures, regulations, technical standards and methodologies.\textsuperscript{47}


In addition, a strategic planning exercise was conducted in 2015 to identify and prioritise actions for quality assurance. It consisted of a pilot self-diagnosis of quality assurance practices in each of INEGI's AUs. This exercise, in turn, supported the elaboration of the Annual Quality Assurance Programme 2015-2016, which was published in the \textit{Normateca} on December 18, 2015, where the

\textsuperscript{46} INEGI, \textit{Manual de integración y funcionamiento del Comité de Aseguramiento de la Calidad del INEGI}, Normateca institucional, March 2015 (final modification: December 2016).

\textsuperscript{47} INEGI, “Marco Conceptual para el Aseguramiento de la Calidad de la Información Estadística y Geográfica del INEGI”, Documentos rectores, Calidad, June 17, 2018.

objectives and expected results in the medium term and the strategies and lines of action for 2016 were defined. In this way the annual quality assurance programmes become, together with the first three documents, the fourth pillar of the Programme.

Also in 2015 the CoAC started the development of various evaluation tools:

- The Administrative Record Quality Assessment Tool (HECRA), originally developed in the framework of technical cooperation between the World Bank and the Government of the State of Yucatán. It was adapted by the Directorates General of Geography and Environment (DGGMA) and of Government Statistics, Public Security and Justice (DGEGSPJ) and has been used in the Register of Environmental Complaints, the Sinaloa State Cadastre and the Cadastral Section of the National Census of Municipal Governments.

- Statistical Capacity Assessment Tool for Household Surveys, which adapted the Tool for Assessing Statistical Capacity (TASC), developed by the Inter-American Development Bank (IDB) and the U.S. Census Bureau to measure technical capacity for the production and dissemination of basic statistics.

- Model for the Spatial Data Quality Declaration which, based on ISO standards, makes a technical evaluation of the finished information product to determine levels of confidentiality.

During 2015, the CoAC carried out an intensive internal programme of dissemination of quality assurance activities.

In 2016, it adopted INEGI's so-called Statistical and Geographical Process Model (MPEG), which draws on the experience of the General Statistical Business Process Model developed by the

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50 Idem.
UNECE supporting the modernisation of statistical production processes in NSOs. This model offers a scheme to facilitate standardisation and, with it, systematic compliance with quality principles.

It also participated in the previously mentioned external OECD peer review and aligned quality assurance actions with the Strategic Programme of the National System of Statistical and Geographical Information (SNIEG) in its review for the period 2016-2040.

Work began on eight specific projects: general model of processes; parameters of opportunity for each project of the maximum acceptable time between the event or phenomenon described and the availability of data for users; guidelines for the identification of information needs; definition of quality indicators (including technical sheets); definition of methodological change; strategy for evaluating accessibility and punctuality; updating of technical regulations and standards for the generation of basic and derived statistical information; as well as the preparation of a technical guide containing the attributes that administrative records must have in order to be used for statistical purposes.

2016 was the first year in which the CoAC operated according to its annual programme and moved towards a vision based on processes and focused on the priority objectives of the SNIEG, seeking to consolidate a quality management system oriented towards continuous improvement with the gradual adoption of the MPEG, the evaluation of the OECD recommendations, its alignment with the PAACI 2017 and the planning for 2016-2040.51

In 2017, the implementation of the quality approach began under a scheme of three strategic activities:

1. Establish quality controls in standardised and documented processes, based on the Statistical and Geographical

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Process Model, which considers the global process of information production in eight phases (documentation of needs, design, construction, collection, processing, production analysis, dissemination and evaluation of the process). With this objective in mind, the Basic Statistical Technical Standard was adapted and its scope was extended to all the phases constituting information projects, which include a final evaluation stage. In addition, a general scheme was established to calculate the total cost of each project, taking into account both direct and indirect costs.

2. Systematic evaluation of the quality of the information with the purpose of designing qualification tools through the elaboration of quality indicators at project level with a standardised calculation and report. These will be part of the metadata documentation of each programme. They should also generate quality reports according to the results of each indicator.

3. Develop protocols to measure and document the impact of improvements or changes in statistical and geographical information programmes. In 2017, 71 improvement actions were identified and used as analyses for the development of the protocols, an activity that would begin in 2018.52

Since 2017, the five approved indicators of accessibility, punctuality and opportunity that are included in the calculation of 100% of INEGI’s information programmes have been reported.

In 2018, the Technical Standard for the Production Process of Statistical and Geographical Information was approved for INEGI and its adaptation began to be applied to the SNIEG in general. It regulates the process of information generation and is compulsory for all the administrative units of the Institute.

In the same year, a Process Cost Model (PCM) was designed and piloted. In addition, the Programming and Budgeting System was modified according to the phases and sub-processes of the MPEG.

The percentage of programmes that published documented metadata based on an international standard increased from 63% in 2017 to 86% in 2018.

Geographical indicators of planimetric and vertical root mean square error, such as topological consistency reporting in the metadata of nine geographical programmes, were piloted.53

In 2019, 10 indicators of relevance were approved and measured for 100% of INEGI’s information programmes and three of precision and reliability for those that have only administrative records as input, which were measured in 79% of this type of programmes.

In the same year, a system was developed for reporting the MPEG evidence and a computer application based on the results of the PCM pilot test with the aim of automatically generating the real direct and indirect costs for each of the eight phases of each project. This application is already in use in 2020 in all INEGI’s information programmes; it produces online results that will make it possible to know the costs per programme at the end of the exercise. The Institute is a pioneer in this project within the Mexican APF.

By 2019, 76% of the Information of National Interest programmes already had deliverables under the MPEG.

The Guidelines for the process of change management in statistical and geographical information programmes were also published, determining the following as essential quality principles: relevance; timeliness and punctuality; truthfulness, understood as

statistical precision and reliability and geographical accuracy and completeness; coherence, consistency and comparability; accessibility; and standardised metadata.

These guidelines also establish the processes for managing planned and unplanned changes in any of the stages of the production process and which may be presented on the basis of new needs, changes to existing ones or by proposals derived from operational experience. They can originate from international recommendations, audits, legal reforms, proposals from users and personnel involved in the production process.54

The 2020 targets include, in addition to the automatic recording of costs: the reporting of precision indicators for surveys and administrative records (which constitute 62% of institutional programmes); the measurement of indicators of relevance, timeliness, punctuality and accessibility in all INEGI programmes; as well as the exclusive use of the HECRA tool for administrative records.

It has also been set as one of the goals for 2020 that 100% of INEGI’s programmes include quality indicators in their metadata and document their improvements through the Change Tracking System (PTRACKING) that was designed in 2019. A plan for the development of a catalogue of evaluations by type of programme is underway and that all the evidence of the MPEG will be collected in a standardised way by phases of the process, with operational indicators and dashboards.

54 INEGI, “Lineamientos del proceso de gestión de cambios en los programas de información estadística y geográfica”, Documentos rectores, Calidad, October 2019.
11.1. Fear of information: past and present

WHAT HAPPENED IN THE PAST

In 1937, the second population census since the Bolshevik Revolution was undertaken in the Soviet Union (the previous one was in 1926). The results were not what Stalin had hoped for. The professional statisticians responsible for the conducting of the census were arrested and later executed on charges of being Trotskyist spies, Bukharinists and enemies of the State, among other things.¹

This census was considered of great importance by the Soviet government, hoping it would serve to quantify the major changes made in the Soviet Union by Stalin’s two five-year plans implemented in the previous decade. In 1935, a Special Commission for the Preparation of the Census was established, composed of some of the Soviet leader’s main collaborators. It was headed by Vyacheslav Molotov, chairman of the Council of People’s Commissars (famous, among other things, for subsequently signing the Molotov-Ribbentrop non-aggression pact between Nazi Germany and the Soviet Union and for giving the Molotov cocktail its name), Lazar Kaganovich, People’s Commissioner for Transport, and Anastas Mikoyan,

People’s Commissioner for the Food Industry, who preceded Ivan Adamovich Kraval, Director of the Census Bureau, and other Census Bureau officials who were also members of the Commission. Stalin personally followed the preparation of the census, including the drafting of the questionnaire.

Government propaganda placed great importance on the evidence of economic and cultural progress that the census was to provide. It was anticipated that these advances would reflect higher population growth than in the United States of America (USA) and Europe, which was linked to the improvement in the living standards of the workers “... after ten years of heroic struggle for socialism...”2 A drop in rates of religious practice as well as an increase in levels of education and literacy were also expected.

The publicity also focused on the technology to be used for the processing of the census and that the data would be ready in 12 months.

Pravda, the main journalistic body of the State, on January 2, 1937 (a few days before the census was to be carried out on the night of January 5-6), extolled the attitude and interest of Lenin and Stalin in statistical information by comparing the Bolsheviks’ appreciation of statistics with the fear of bourgeois and petty-bourgeois politicians, comments that would become part of the historic irony in the light of what happened shortly afterwards.3

A total of 130,000 instructors and 900,000 volunteers were mobilised to carry out the census in adverse weather conditions in the midst of winter, with serious communication problems in a country convulsed by ethnic and social conflicts. Catherine Merridale reports that the census responses were in most cases seriously recorded, highlighting the care taken in writing the responses on the flimsy paper used.4 This effort by the interviewers

3 Idem.
4 Ibid., p. 229.
may be the only thing that would have merited the label of heroic, but nonetheless went unrecognised in government propaganda.

However, the results were not as expected by government leaders. Two figures would be particularly sensitive, the population estimated in 1937 was 162 million when, in 1934, the government had published as official data 168 million (which, in turn, considered as a previous reference figure 160.5 million in 1930). The figure of 162 million was at least 8 million less than expected due to its projections of population growth. The other figure, especially contradictory of the government’s expectations, indicated that 56.7% of the inhabitants identified as religious.5

The government soon detected the risks involved in publishing these results and, almost immediately, surrounded the census with high levels of secrecy, finally declaring it invalid in September 1937. A conspiracy was alleged by the enemies of the regime who had infiltrated subversive elements among the enumerators to carry out a plot against the State. A decision was taken to arrest the main statisticians responsible for the undertaking of the census, who were later executed. Numerous directors of regional offices were also arrested and probably killed (there are no reliable records on this) in an attempt to find culprits. The political members of the Special Commission for the Preparation of the Census did not suffer any sanctions and continued their successful careers within the Soviet establishment.

The information was not published, although most of it would be preserved in archives that 50 years later, in Gorbachev’s Glasnost (opening), would become available - initially only to researchers from the Soviet Union itself - which made it possible to have the information on the results outlined in this chapter.

So what happened?

In order to explain the population decline, perhaps the most shocking fact against the policies of the Stalinist government, it is necessary to go back to the famine that broke out in 1932-1933 as a result of the introduction of agrarian collectivisation in the Soviet Union (a policy, incidentally, led by Molotov and Kaganovich, conspicuous members of the Census Preparatory Commission, among others, in addition to Stalin), which affected mainly, though not exclusively, Ukraine and Kazakhstan. The episode is known as the Holodomor, which in Ukrainian means starvation and which various authors estimate caused the deaths of between 5 and 10 million people.6

It remains to be seen why the Soviet leadership failed to foresee this, as they were fully aware of the famine and must have received information from the local civil registration offices (ZAGS) in the years between the 1937 census and the previous one in 1926.

There are no sources that provide information on the process that led the Soviet leadership to cancel the publication of the census; what is known is that they clearly needed statistics to confirm the success of the policies conducted by the regime in the previous decade and even Stalin himself was a strong promoter, in what has been described as a statistics mania.7

The demographic information that Kraval provided in secret to Stalin and Molotov during those years generally minimised the true scale of the disaster. It was based on the number of registered births without considering the much higher proportion of deaths that had not been registered, among other reasons, due to the large number of bodies that had to be buried, often in places where all or a very high proportion of the population had died and that were lacking the minimum elements to register the deaths of those who, on many occasions, were not even known by name.8 Still, in March 1937, Kraval presented a report to Stalin and Molotov with positive results regarding population growth in the Soviet Union in which

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7 Idem.
8 Ibid., pp. 236-238.
he indicated that it was higher than that experienced by the main capitalist powers. It was not going to be of much use to him.

It can be concluded that the Stalinist regime was a victim of its own characteristics, that is, of its terroristic methods, to the extent that the information it received was distorted by its own officials who were afraid to tell their leaders the truth.9

It cannot be ruled out that, at the very least, Stalin had fallen into self-deception as a result of his own propaganda, a phenomenon that is not alien to some authoritarian leaders who fail to distinguish between reality and their imagination, a clear example of this would be a deeply psychologically altered Hitler at the end of the Second World War, who included non-existent military divisions in his battle planning.10 Everything indicates that Stalin was not prepared for this eventuality, taking much more care in the subsequent 1939 census, in which the results were manipulated to match the population figure desired by the regime at the time: 170 million.11

What did happen was the cancelling of the publication of the 1937 census. It was declared invalid due to the intervention of saboteurs from the petty bourgeois, churches, tsarist Russians and other enemies of the people instigated by Trotsky and Bukharin, Stalin’s favourite adversaries in the power struggle to succeed Lenin years before.

The elimination of the main statisticians responsible for the census would be part of the wave of internal terror that was unleashed from that year onwards to eliminate Stalin’s enemies - both real and fictitious - and which was going to cost the Soviet Union at least another two million victims12 at the dawn of the biggest conflagration the country was to face in its existence. The information was hidden from the population, the government officials themselves and from the world at large.

9 Ibid., p. 236.
A final irony is that the preserved data from the 1937 census would become, after many years, one of the richest sources of information on the Soviet Union at the time when access was finally opened to users in the 1980s. All indications are that the census was properly undertaken.

WHAT HAPPENS TODAY

On December 30, 2019, Dr. Li Wenliang made a comment to a group of friends in WeChat (the equivalent of the WhatsApp application in China) about taking precautions, as he had observed a number of strange cases of pneumonia at Wuhan Central Hospital where he worked. The infected people were quarantined and there was no explanation of cause at that time, only that all the patients were working at the local fish market stalls. His message immediately went viral.

By midnight that same day he was summoned to the hospital, where he was reprimanded for spreading this kind of news. On January 3, 2020, he was summoned once again, this time to the local police station, where he was accused of spreading rumours and subverting social order, and was forced to sign two statements, one stating that he would not engage in this kind of illegal activity in the future (allegedly for having reported on strange diseases) and another confirming that committing a repeated offense of this nature would be punished in accordance with the law.

It is worth mentioning that years before, in 2011, Li Wenliang had demanded, in Weibo, the reinstatement of a journalist who had been dismissed for investigating the lack of security on a railway line as a result of a collision between two trains leaving 40 people dead.

Dr. Li Wenliang died on February 7, 2020 at the age of 33, a victim of the coronavirus epidemic and one of the first cases to be detected, which would later spread throughout the world and

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which, at the time of writing, its consequences are still unpredictable in terms of demographics, social, economic and, most importantly, human suffering.

This case, although it did not involve a statistical office at the time, is illustrative of the sometimes almost instinctive reaction of authorities to manage information instead of acting on it promptly and communicating it to bodies that might have a bearing on the resolution of a problem as well as to people who might be affected.

In this case, it is clear that there were no protocols for handling the information (with published rules on its confidentiality) that would have prevented and protected the medical personnel themselves who were in contact with patients. The choice was made to divert resources and time from preventing the loss of control over the dissemination of information rather than actually dealing with the situation at hand.

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**Postscript COVID-19**

The above case, as mentioned, was originally included to exemplify a current situation in which authorities (in this case, hospital management and local police in Wuhan) were violating the right of society and individuals’ access to information relevant to their well-being. The events reported occurred between December 2019 and February 2020 and were included in a draft version of this book at the end of February. Afterwards, COVID-19 became an epidemic that soon spread as a pandemic to all continents and countries of the world while unleashing the biggest global crisis of the 21st century in terms of health and the economy.

It has also offered the opportunity to witness the handling of information about the pandemic by the various gov-
governments of the world, although this story, like all stories, will require the passage of time to be properly told; as this book goes to press there are some aspects that can be addressed, albeit provisionally, for the future study of the use of the data during this crisis.

On the one hand, we can identify the difficulties that government agencies have generally experienced in generating and obtaining timely data on the damage of the pandemic, mainly in some of the most affected fields, such as health, economy and employment, in a context where its effects were present in an accelerated manner and the agencies were limited in their actions by the closure of their own offices and the impossibility of carrying out field operations. Various national statistical offices (NSOs), such as INEGI, have implemented measures to continue collecting information via the internet or telephone, but obtaining data on the number of infections and deaths caused by the pandemic has encountered serious problems in many countries either, in the first case, because of the scarcity or lack of laboratory tests to detect the disease, or because of the incorrect registration of causes of death other than COVID-19, in the second case, to which should be added the technological limitations of the registration systems in most developing countries.

In addition to these difficulties, there has also been the poor use of information by some governments both in communicating the effects of the pandemic and in its prevention and care. It will be up to statisticians and historians in due course to reconstruct the history of data on a wide list of issues that have been controversial in many countries, ranging from the effectiveness of the use of face masks and other preventative measures, the underestimation (and possible manipulation) of the figures for infections and deaths, the usefulness of mass testing for the population, as well as the technical problems of carrying it out, measures for detecting and caring for outbreaks and a long list of other issues. Where there are no digitised electronic systems for recording illnesses and deaths, NSOs should advocate for
their modernisation in circumstances that can be expected to be at least complicated, due to the lack of budget and political will to devote resources to them amidst needs that are perceived as of higher urgency.

These concerns should be added to the task already faced by the statistical and geographical information producing agencies to continue - and if necessary reconstruct - the historical series resulting from their multiple programmes, as well as to design new and necessarily ingenious projects to measure what’s to come in terms of this crisis and its subsequent effects, once it is under control.

With regard to COVID-19, a counterfactual analysis is still pending on what would have happened if the first authorities who came into contact with the problem, instead of devoting time and resources to preventing the dissemination of the information, had concentrated their efforts, based on the data they had, on achieving an efficient reaction that would have made it possible to control the effects of the virus spread in a timely manner. This analysis will also be relevant to the local management of information in each country in its attention to this pandemic and should serve to identify responsibilities - whether due to technical or, where appropriate, intentional errors - of the various authorities.\(^a\)

\(^a\) For example, in Spain 50 scientific-medical associations have recently requested an independent external audit to evaluate the management of the COVID-19 pandemic. See Raúl Limón, “España es ya el país con más contagios de Europa occidental”, *El País*, August 7, 2020; & Javier Salas, “Crecen los apoyos a la petición de un examen independiente de la gestión de la pandemia”, *El País*, August 9, 2020.

11.2. The vulnerabilities of independence. Recent cases from around the world

Although in various instances of the United Nations (UN) and finally in its General Assembly, the countries of the world unanimously approved the Fundamental Principles of Official Statistics,
which enshrine the independence of official statistical agencies to produce information only under strictly professional considerations, the reality is that the application of these concepts still faces great resistance in many parts of the world.

Below we begin an analysis of the most symptomatic cases that have come to light in recent years, where various governments have intervened or tried to intervene in the work of national statistical or geographical offices for the benefit of political interests and to the detriment of the public’s right to information.

This review will warn us of the variety of modalities under which this phenomenon can arise; although its listing may unfortunately not be limiting, it does allow for the observance of the general patterns of occurrence and the development of an analysis of its future care. The cases are dealt with in alphabetical order.

ARGENTINA

Argentina’s National Institute of Statistics and Censuses (INDEC), which had established itself over the previous 20 years as one of the continent’s most accredited NSOs, was subjected to political interference in 2006, and in the following years, by the governments of Néstor Kirchner and his widow - and successor from 2007 - Cristina Fernández de Kirchner, who replaced INDEC’s Director General and a large number of the specialised staff with supporters of their governments. They introduced the so-called militant statistics,14 which were nothing more than altering the inflation figures (at first and then other data) by reducing them in such a way as to present a favourable image of the government to the Argentine public and, in particular, to the International Monetary Fund (IMF) in negotiations for the obtaining of international loans.

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The deception was soon detected through information from INDEC staff about the way price indices were compiled but, above all, by the analysis of numerous national and foreign experts who discovered that the official figures did not correspond to reality. Consultancies led by renowned economists such as Jorge Todesca and Marco Lavagna - future directors-general of INDEC - and Gabriela Bevacqua - previous technical director of the same institute (who was dismissed by the government) - were fined by Guillermo Moreno, Minister of Commerce, for publicising alternative measurements of INDEC’s price variations and were even criminally prosecuted.\(^\text{15}\)

Disrepute soon spread abroad. The prestigious publication *The Economist* stopped publishing Argentina’s inflation data in 2012 because it was considered bogus\(^\text{16}\) and in its June 20, 2014 edition it headed an article entitled “Don’t lie to me, Argentina” paraphrasing the famous musical Evita, where it referred to the reasons for not using Argentina’s official figures.

The IMF, at its Executive Board meeting on September 17, 2012, requested the Argentine government to take a number of remedial measures regarding the deficiencies in price index and Gross Domestic Product (GDP) information which, when not substantiated, led to a censorship declaration on February 1, 2013 due to the magnitude of the credibility problems with the official data produced by INDEC. This was the first time in the Fund’s history that a country had received such a declaration.\(^\text{17}\)

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Around the same time, during a meeting of the United Nations Statistical Commission (UNSC), the representative of South Africa, Pali Lehola, made a comment in the plenary session where he expressed his concern about the various cases that were occurring around the world where national governments had taken harmful measures against the independent production of information by several NSOs and mentioned the cases of Argentina, Canada and Greece (the last two will also be discussed later in this chapter). The following day, this led to the presence in the Commission of a representative of the Argentinian Mission to the UN who made those present endure the long reading of a document of several pages in which she justified the information published by its country. She ended by making a final protest to the UNSC, but not before asking for the dismissal as Commission Chair of the Director General of the Hungarian Statistical Office, who had chaired the previous day’s session, for having given the floor to this topic. Unfortunately, she never explained how the Chairperson could know, in advance, the topic to be discussed or what measures to implement so that it would not be fully exposed upon guessing at what the comment would lead to.

With the best diplomatic efforts, the document was received and processed without any further consequences. However, this incident speaks for itself of governmental behaviour. It also offers a magnificent example of how ideology to justify questionable actions of power can raise the threshold to ridicule of its defenders.

With the arrival of Mauricio Macri’s new government in December 2015, a period of reconstruction of INDEC began and Jorge Todesca was appointed to carry it out. He immediately implemented a short-term plan to restore the legitimacy of data generation and assembled a professional team for this purpose. The publication of information was temporarily suspended, so a state of statistical emergency was declared with the aim of reviewing all methodologies, sources and processes of its production.18

The programme was successful and the IMF motion of censure would be withdrawn in November 2016. The Economist re-published INDEC figures as of May 2017.  

By 2018, national statistics were already recognised by the Organisation for Economic Co-operation and Development (OECD) and used in the Argentine government’s accession process to this institution. In the same year, the directors of statistics of the OECD, Martine Durand, and the IMF, Louis Marc Ducharme, as well as the director of the United Nations Statistics Division (UNSD), Stefan Schweinfest, visited Buenos Aires to celebrate INDEC’s 50th anniversary, in a demonstration of recognition of the work of Jorge Todesca and his team to recover the prestige of his country’s statistics.

The new president of the Argentine government, Alberto Fernández, who arrived at the end of 2019 - albeit in alliance with Cristina Fernández de Kirchner - publicly acknowledges the work of Todesca, who did not remain in the position presumably due to the cancer he suffered from shortly after assuming the post of director general at INDEC. In his place, Marco Lavagna, another victim of the period of the repression of statistics, is appointed, giving hope at the present time for the professional future of official statistics in Argentina.

Jorge Todesca died on February 21, 2020 with widespread national and international recognition for his work at the head of INDEC.

**BRAZIL**

On July 20, 2019, Brazilian President Jair Bolsonaro fired the director of the Brazilian National Institute for Space Research (INPE),

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Ricardo Galvão, accusing him of inventing the increase in deforestation in the Amazon and discrediting his country abroad.\textsuperscript{20}

Preliminary data published by INPE showed that more than 1,000 km\textsuperscript{2} of rainforest had been destroyed in the Amazon region of Brazil in the first 15 days of July 2019, 68\% more than was destroyed in the same month in 2018. The agency also indicated that the information was 95\% accurate in its measurement.

The main cause for logging is attributed to the creation of cattle grazing fields, which was reduced in the previous decade by the coordinated intervention of several Brazilian federal government agencies and the application of a system of fines to forest protection violators. The Bolsonaro government has expressed its opposition to these measures and has reduced the confiscation of illegal wood.

At the same press conference in which he announced the dismissal of the INPE Director, Bolsonaro took the opportunity to deny that there was hunger in Brazil, as stated in a recently published report by the United Nations Food and Agriculture Organisation (FAO), which estimated that 5.2 million people had suffered from hunger by 2017.\textsuperscript{21}

\textbf{CANADA}

\textit{Statistics Canada (StatCan)}, Canada’s statistical office, has been recognised for many years as one of the world’s most prestigious NSOs for the quality of its work. In the 1990s, it developed a strong international leadership role in advancing the development and improvement of statistics in all major global statistical forums. It was led by Ivan Fellegi, a mathematician of Hungarian origin, who was the institution’s \textit{Chief Statistician} from 1985 until 2008.

\textsuperscript{20} Herton Escobar, “Brazilian institute head fired after clashing with nation's president over deforestation data”, \textit{Science}, August 4, 2019.

\textsuperscript{21} \textit{BBC News}, “Amazon deforestation: Brazil's Bolsonaro dismisses data as lies”, \textit{BBC News}, Latin America, July 20, 2019.
when he decided to retire. Fellegi brought together an outstanding team of both Canadian and international statisticians, including the polyglot Jacob Ryten and the Hungarian-born Béla Prigly, who were very active in Latin America and the Caribbean.

Although StatCan belonged to a ministry of the Canadian federal government (Innovation, Science and Economic Development), a tacit agreement - regarded by both parties as a convention or consensus - had been established over the years whereby the respective minister defined what information was required for public policy and the Chief Statistician determined how statistical programmes were conducted.22

However, with the arrival of the conservative government of Stephen Harper in 2006 (re-elected in 2008), with a radical agenda in some respects, the new administration decided to eliminate, for the 2011 population census, the so-called long form used in the previous census questionnaires and replace it with a voluntary questionnaire with a minimum of questions to be applied in a National Household Survey. The argument was that the mandatory long form was an intrusion into the privacy of Canadians.

StatCan tried to explain the risks to the quality of the information, as the new questionnaire would prevent comparability with previous data, so that the development of many demographic and economic factors in the country could not be known, and there were confidentiality safeguards in place to ensure the individual data of the respondents. However, there was no prior argument or convention that could convince the authorities. StatCan’s Chief Statistician, Munir Sheikh, resigned.

The results of the 2011 census showed a 68.2% response rate, compared to 93.5% in 2006; information on 25% of the country’s

communities could not be published due to the very low response in those areas, particularly affecting native populations.23

On a visit to INEGI in 2010, Jacob Ryten lamented that when StatCan learned of the process to achieve autonomy for the Institute, they had underestimated the importance of having a legal statute that protected the independence of the institution, as they had a system that, in practice, worked as such and had been traditionally respected by their governments.

This was one of the lessons learned from that experience. Fortunately, when the Liberal Party returned to power in 2015, the new Prime Minister Justin Trudeau restored the long form questionnaire and pushed through legislation to preserve the integrity of the information in the new Statistics Act, which in Article 5 gives responsibility to the Chief Statistician to decide, based strictly on professional statistical standards, the methods and procedures for conducting statistical programmes, the content of publications and the time and characteristics of information dissemination.

ECUADOR

In Ecuador, the arrival of Rafael Correa as President of the Republic in 2007, an academic well-versed on the importance of statistics - who would later be re-elected and serve until 2017 - brought with it a considerable increase in the technical capacity of the National Institute of Statistics and Censuses (INEC) accompanied by increased budgetary resources.

In 2013, it was reorganised as a public law body with its own legal personality and assets, with technical, budgetary, financial, economic, administrative and management autonomy. However, it was maintained as an entity attached to the Ministry of Planning.

and Development (SENPLADES) while the hierarchical status of the Director General of INECE was raised to Deputy Minister, appointed by the President of the Republic from a list of three candidates proposed by the minister in charge of SENPLADES. In practice, this meant that the numerous appointments made over those years were of people close to the president.

In the same vein, legislation was passed for the National Statistics and Census Council (CONEC) to be chaired by the Minister of SENPLADES and for the heads of the coordinated ministries to participate, along with the head of INECE. This Council was assigned the functions of ruling on the National Statistics Programme prepared by INECE, arranging for national censuses to be carried out, as well as approving their planning and budget.

In this way, a paradigmatic situation occurred in the sense that, although INECE benefited in its capacity - and in fact carried out during this period important statistical operations such as population and economic censuses, in addition to surveys and administrative records programmes - its governance was linked in technical aspects to the government’s national planning system.24

All this, as is often the case, worked to the advantage of INECE while the economic and political situation was positive for the government. However, when the adverse economic situation in 2016-2017 arose, and with a national election approaching, President Correa began to minimise the negative figures and highlight the positive ones that would allow him to defend his administration. This strained his relationship with INECE, as it led him to criticise the data presentation formats and employment indicators. Locally, INECE was questioned for not defending its autonomy in an election year,25 which resulted in the loss of public confidence in the country’s official data, a confidence that, once lost, is practically impossible to restore.

24 Eduardo Dargent et al., ¿A quién le importa saber? La economía política de la capacidad estadística en América Latina, pp. 44-49.
25 Idem.
On March 26, 2018, US Secretary of Commerce Wilbur Ross, to whose office the US Census Bureau is attached, decided to add a citizenship question to the 2020 census.26

The inclusion of this question was justified by the need to implement the Voting Rights Act of 1965 to maximise the participation of ethnic minorities in elections. This postulate had not exactly been part of the policies of the ruling Republican Party and seemed more the result of the radical anti-immigrant policies openly advocated by, among others, Ross and Steve Bannon who, since shortly after Donald Trump’s inauguration, met to discuss the addition of such a question to the population census.27

Prior to this decision, the Census Bureau had indicated to the Secretary of Commerce its opposition to the inclusion of this question, as experience indicated that it would affect the response rates of ethnic minorities. This would produce effects contrary to the administration’s professed objective, and there was insufficient justification for obtaining this information at the block level, as there were other more efficient ways of calculating it through administrative records. However, these technical considerations were ignored by Ross.28

The political importance of the census can be seen in that it serves as a basis for distributing the country’s 435 electoral districts and, therefore, how many electoral votes each state is entitled to, in addition to the fact that around 880 billion (US) dollars of public funds are allocated to the states annually for schools, roads and other public services on account of their population.29

In addition to the technical objections, there was the possibility of a significant reduction in the count of millions of Latinos and African Americans to the direct detriment of Democratic Party voters. According to a BBC report, it emerged that in 2015 Tomas Hofeller, a Republican Party political consultant and expert on redistricting issues, had concluded in a study that adding this question would bring a major electoral advantage to this party, as the electoral districts would be altered in its favour.30

As a result of the decision to include this question, a series of lawsuits were filed by at least a dozen states and civil organisations in that country, such as the American Civil Liberties Union, among others, in federal courts in California, Maryland and New York.

It is important to note that the U.S. Constitution requires counting the total number of free persons in a state every 10 years without mentioning whether or not they are U.S. citizens (Article 3). In fact, the California Attorney General argued that the citizenship question violated the Constitution by interfering with the total population count. His counterpart in New York indicated that it made it impossible to achieve an accurate census, as well as the equitable distribution of federal funds.

The federal courts considered that the question would result in a less accurate measure of citizenship than that achieved by other means and that it would disproportionately disadvantage the immigrant and Hispanic populations, and was therefore considered an arbitrary and capricious measure in violation of administrative law.31

The Trump administration then decided to go to the Supreme Court, seeking a decision allowing for the inclusion of the citizenship question. At the same time, the Democratic legislature in the House of Representatives intervened, asking Ross and Attorney General William Barr to provide them with documents regard-

30 Idem.
ing the reasons for the decision to add this question. In response, President Trump invoked executive privilege to deny Congress these documents and intervened personally to argue for the addition of this question, to which the House Evaluation Committee responded by voting 24-15 that Ross and Barr were held *in contempt* of Congress’s legal order to deliver these documents.32

Finally, on June 27, 2019, the Supreme Court decided against the Trump administration with a close vote (5-4), in which its President John Roberts, considered a Conservative, voted with the Liberal Justices that the government had not provided adequate justification for adding the question.33

Initially, President Trump himself indicated that he would continue to seek judicial remedies to provide the justification needed to add it, even if this meant delaying the census. However, after a few days, on July 12, 2019, the President decided to no longer continue this process, as it would imply a considerable delay in the undertaking of the census. At the same time, he noted that citizenship information would be obtained through an executive order to various government agencies (basically the original option suggested by the Census Bureau experts) in order to meet their objective of determining the citizenship status of the United States population.34

On March 12, 2020, while this book was being written, the U.S. Census began, accompanied by a major advertising campaign supported by Latino community leaders, activists and politicians to encourage the Hispanic population to participate and be counted. This strategy, with a budget of $50 million, emphasises the importance of all Hispanics being counted, as well as the legal protection of the confidentiality of the data they provide, which cannot be passed on to other authorities as it would imply severe penalties for the official who incurred this. This campaign originated from

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the reluctance of the Hispanic community to respond to the Census forms caused by the Trump administration’s failed attempt to add the citizenship question.35

On July 17, 2020, President Trump announced that he would issue an executive order to exclude the number of illegal aliens from the population base used for each state’s congressional seat allocation process, which he did on the following July 21 with the Memorandum on Excluding Illegal Aliens from the Apportionment Base following the 2020 Census.36 In response, civil organisations and attorneys general from several states have indicated that they are preparing legal actions to prevent its implementation.37

Previously, in May 2020, the Deputy Secretary of the Department of Commerce informed the Director of the Census Bureau of the appointments within the Bureau of Nathaniel Cogley, as Deputy Director of Policy, and Adam Korzeniewski, as his Senior Advisor, expressing “… [their] support … will help the Census Bureau achieve a complete and accurate 2020 Census and study future improvements…”38 It was striking that these designations were made after several years of Census planning and in the midst of the Census. Furthermore, the first of these is the highest appointment of a political nature, apart from that of the Census Bureau Director, in an institution that is considered to be of an eminently technical nature.39

Apparently, as this book goes to press, this story is not yet over.

38 Census Bureau, “Statement from Census Bureau Director Dr. Steven Dillingham”, Publication no. CB20-RTQ.20, June 23, 2020.
In 2010, Greece was in the midst of a financial crisis caused by the mismanagement of, among other things, its public debt and deficit, with serious doubts about the figures that the Greek government was providing to its European Union (EU) partners and the IMF in the negotiations it was conducting with them to obtain funds to rescue its economy.

The Greek government, in the face of international pressure, decided to amend its habits and issue a *Statistical Law* that would replace the National Statistical Service (NSSG), a unit assigned as part of the structure of the country’s Ministry of Finance, with an independent national statistical office: the Hellenic Statistical Authority (ELSTAT), governed by the professional principles for the production of official statistics established by the UN, the *European Statistics Code of Practice* and Eurostat.

The open competition for the position of President of ELSTAT was advertised internationally, including in *The Economist* magazine. Andreas Georgiou, a renowned Greek economist and statistician who was at that time working at the IMF, was appointed to the post.

In previous years, Eurostat, in its twice-yearly publication of EU Member States’ statistics, had expressed *reservations* about the Greek government deficit and debt figures in six of the last 11 revisions it had made since 2005. It led Eurostat, in addition to the continuous and extensive monitoring already carried out, to make four extraordinary *methodological visits* to Greece during 2006-2009 to review the quality of this information, being the only EU member country requiring such a measure.\(^40\)

In the midst of these years the global financial crisis known as the Great Recession of 2007-2008 broke out, severely affecting the Greek economy causing a major crisis by the end of 2009.

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International partners lost confidence in its economy, which practically closed the possibility of obtaining credit for a country that lacked prestige with respect to the statistical information it provided to its partners and creditors, who, moreover, became its only hope for a financial rescue that was eventually going to require hundreds of billions of euros.

In January 2010, the European Commission published a report on Greek deficit and debt statistics in which it identified several cases (during 2005-2009) in which Greece carried out “... a deliberate misreporting of figures...”.41 A similar conclusion will be reached by the European Parliament in the results of its research on the role of the so-called Troika (European Central Bank, European Commission and IMF) in the countries of the euro area. With regard to Greece, it concluded that the “... problematic situation [...] was also due to statistical fraud in the years preceding the setting up of the programme...” of financial assistance that the Troika authorised to the Greek government in May 2010.42 Through this programme, the first of three rescue loans was granted, for 110 billion euros, conditioned to the implementation of austerity measures, structural reforms and privatisation of government assets.

It is in this context that Andreas Georgiou took over ELSTAT in August 2010, where he found a statistical system inherited from the NSSG, which was highly questioned by European partners, complaining that the production of information had been contaminated by political interference.43 Georgiou immediately embarks on a restructuring of statistical production processes in accordance with professional standards, as well as a review of the most controversial figures published in recent years. He detects serious problems in a wide range of issues affecting the classification of public sector entities (which allows the exclusion from the deficit and pub-

41 Ibid., pp.15, 22, 26 & 27.
lic debt data of debt incurred by entities which, although in reality belong to the public sector, are listed outside this classification; the recording of so-called swaps (which consist of changing the nature of various payment schemes); the recording of transactions of social security funds and government bonds payable; as well as expenditure on interest of government bonds; and so on. All this had led to an apparent decline in reported debt statistics and hence in the government deficit.\textsuperscript{44}

By November 2010, the government’s overall deficit as a percentage of GDP, which had been calculated in April of that year at 13.6%, was revised upwards to 15.4%, which provoked a virulent reaction from the opposition against the figures, using this pretext to attack the governing party led by George Papandreou (PASOK, considered to be centre-left) since 2009. These attacks were led by Antonis Samaras, the leader of New Democracy (centre-right), a party that had been in power the previous years (in which Samaras was a minister) and therefore had direct responsibility for the figures that had been handled in his administration, as well as by Syriza led by Alexis Tsipras (considered to be of the extreme left).\textsuperscript{45}

These were not the only figures that needed to be revised. The government deficit to GDP ratios of previous years would eventually have to be adjusted from -7.5 to -8.8\% (2004); from -5.1 to -6.2\% (2005); from -2.8 to -5.9\% (2006); from -3.6 to -6.7\% (2007) and from -5 to -10.2\% (2008).\textsuperscript{46} The scandal in the EU was huge, as was the reaction of some political parties who accused Georgiou of practically betraying the country by selling out to foreign creditors.

In fact, the alteration of figures had contributed directly to the worsening of the country’s financial situation by not making


it possible to understand Greece’s economic reality and to plan solutions on an objective measurement of it.

What Georgiou had done was to apply internationally accepted methodologies, which Greece had committed itself to observing since its accession to the European Union and the Euro Zone, and which were perfectly defined in the Eurostat guidelines to which the country had adhered and even enshrined in the new Greek Statistics Law.47 Furthermore, it should not be forgotten that Greek authorities had professed to comply with this same regulation for many years.

From that point onwards, Greece’s statistics are stabilised in the sense that they are accepted by Eurostat and the IMF, which consider them to be in line with internationally accepted reporting guidelines. In fact, no reservations will be entered in any of the six-monthly checks that Eurostat will carry out in the next nine years to date (which include the 10 checks that were carried out during the five years that Georgiou was at the helm of ELSTAT). These statistics will also be used by the subsequent Greek governments, led from 2012 by the New Democracy and Syriza parties in the recurrent negotiations to rescue the country’s economy, which would show little sign of returning to economic normality until 2017.

Another situation that Georgiou encountered since his arrival into management was that the ELSTAT Board was composed of, in addition to the President of that institution, five external advisors and a trade union representative. Some of them intended, from the outset, that statistical results should be subject to a vote in the Board,48 in direct contravention of the European Statistics Code of Practice which, in its indicator 1.4, gives the presidents of the European NSOs sole responsibility for deciding on statistical methods, standards and procedures, as well as on the content and timing of data publications, as part of the first principle of

this Code which enshrines the professional independence of the producers of statistical information.\(^49\)

It should be noted that this Code constitutes the cornerstone of the European Statistical System and is adhered to, in addition to Eurostat, by all the NSOs of the European Union to which Greece belongs. It derives from the legal provisions of the Treaty on the Functioning of the European Union, which dates back to its foundation in 1957, when it was originally signed as the Treaty establishing the European Economic Community, one of the four EU constitutional legal documents together with the Treaty on European Union, the Treaty establishing the European Atomic Energy Community and the Charter of Fundamental Rights of the European Union.\(^50\)

These are the legal bases, as well as the most elementary logic indicating that statistical data cannot be subject to votes or subjective opinions of any kind. However, a refusal to put the information to the vote would soon bring legal consequences for the President of ELSTAT.

Although Greece had brought its statistical system into line with internationally accepted principles and methodologies and already had accurate data on its economic variables, the country was plunged into one of the worst economic crises in history, completely unable to liquidate its debts. The fall in GDP was 9.1% in 2011 accompanied by 17.9% unemployment (which in the case of young people exceeded 34.8%).\(^51\) All this brought social protests and led to the fall of the PASOK government in the same year in which it was replaced, first, by a technocratic administration to then make way for the return of New Democracy in 2012 and the arrival of Syriza in 2015.

The financial rescue of 2010 was followed by others in 2012 and 2015 with great tensions and confrontations with European

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partners even putting the viability of the European Union and the global financial system itself at risk. Twelve rounds of tax increases, cuts in public spending with serious effects on social programmes and the pension system would continue until 2016, and a semblance of economic normality would be achieved only in 2017.

The internal and external political effects for Greece were significant, with a great wear on the country’s social fabric that had repercussions on the statistical system and, in particular, on the President of ELSTAT, who some politicians identified as the cause and part of the problems faced by that nation. However, it is surprising that Georgiou was not removed from office, probably because of the cost this would have imposed on the Greek government in the eyes of the European Union.

The prosecution of Georgiou, which begins with the first investigative proceedings in 2011, will reach Kafkaesque proportions. The list of trials is long, and a summary of them is presented below:

1. Criminal proceedings for complicity against the state, filed against Georgiou and his staff members in ELSTAT for inflating the figures of the 2009 government deficit, causing 171 billion euros in damage to the country. The charges may involve a sentence and life imprisonment for the accused. Georgiou has been exonerated three times by the Greek Court of Appeal. On the first two occasions, the Chief Prosecutor of the Greek Supreme Court of Justice overturned the decisions of the Court of Appeal and obtained the Supreme Court’s authorisation to reopen the case, a highly exceptional situation even in judicial systems that allow criminal proceedings to be reopened once the accused obtains a sentence in his favour.

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in a Court of Appeal. In May 2019, Georgiou was exonerated for the third time and no further charges have been brought.

2. Breach of duty, by not submitting the revised figures for 2006-2009 of public finances to a vote of the ELSTAT Council. He was unanimously exonerated from these charges in December 2016 by a panel of three judges at a Court of First Instance which recognised that his actions were in accordance with Greek and European law. However, this decision was dismissed a few days later by a prosecutor outside this court and he was retried in a Court of Appeal for the same case, and was therefore convicted in 2017 for failing to submit the statistics to a vote. In June 2018, the Supreme Court confirmed this sentence despite testimony and evidence of the requirements of the *European Statistics Code of Practice*. Georgiou was sentenced to two years’ imprisonment suspended for three years unless he receives another conviction within that period.

3. Criminal defamation proceedings initiated by the former Director of the National Accounts Division of the former statistical office (NSSG) during the period 2006-2010, who had been responsible for the production of statistics not validated by Eurostat and subsequently corrected by ELSTAT. The public comments on the statistics were in line with the *European Statistics Code of Practice* and are international practice required for clarification of errors and comparability analysis of numbers. A court of first instance sentenced Georgiou to one year’s imprisonment (suspended) in 2016 for simple defamation (meaning that his statements, although true, damaged the plaintiff’s honour and reputation). In May 2017, the Court of Appeal upheld the sentence which was eventually overturned by the Supreme Court for significant legal errors and, although a new trial was attempted against him, the charges were dismissed because the facts had legally prescribed.
However, in a civil trial on the same subject in August 2017, he was ordered to pay damages, court costs and to publish full extracts of the sentence in a Greek newspaper as a public apology. Georgiou appealed this action, and the decision has been postponed three times. The most recent, which had originally been scheduled for resolution by the Court of Appeal for January 2020, has been rescheduled for September of the same year.

4. Criminal trial in addition to that of complicity against the State (narrated in point 1 above), only in this case representatives of the European Commission, Eurostat and the IMF were involved, in addition to the President and senior statistical officials of ELSTAT. Initiated in 2016 and apparently forgotten by the judicial system, possibly because of the consequences that its activation would bring. No charges have been brought, but neither has it been formally dismissed.

5. Criminal prosecution of Georgiou for requiring ELSTAT staff to sign the statistical confidentiality declaration required by the *European Statistics Code of Practice* (indicator 5.2) to protect the private information of households and businesses. Two criminal investigations were launched in 2013, later combined into one. Georgiou made statements in both, but to date there are no charges or evidence that the case has been closed.

The international statistical community has protested and displayed the attitude of the Greek government on many occasions; even distinguished European statisticians have arrived as witnesses on behalf of Georgiou to various hearings in Greece - Gerry O’Hanlon, former President of the Statistical Office of Ireland, Hallgrimur Snorrason, former President of the Statistical Office of Iceland and the International Association for Official Statistics (IAOS), and Luca Ascoli, Head of Government Statistics at Eurostat - who experienced first-hand the tortuous judicial path that Georgiou has faced in exercising his right to defence and who also witnessed the pressure exerted by mobs of protesters inside and outside the courts against the former head of ELSTAT.
Numerous prestigious international economic and political news outlets have condemned the actions of the Greek government over the years.\textsuperscript{54}

On June 18, 2018, a total of 80 presidents (past and present) of world statistical offices and international organisations, as well as professional associations, added their voices in support of Andreas Georgiou to condemn the attitude of the Greek government and to urge Greece’s European and international partners, who depend on reliable information about its government deficit and debt, to address the blatant contradiction of providing aid on the basis of statistics that are called into question at the highest judicial levels in the country itself.\textsuperscript{55}

On September 18, 2018, a session organised by the IAOS on the topic of the \textit{Professional Independence of NSOs: Threats and Responses} was held at the OECD premises in Paris, attended by the world’s leading official statisticians from national statistical offices, international organisations and academia to discuss the problems faced by statistical agencies in producing information without political interference. At this meeting, Andreas Georgiou was recognised for his technical capacity and strength in the face of adversity, for his commitment to the generation of quality and reliable data, and for his struggle for the improvement, integrity and independence of official statistics.

The bodies that signed this recognition were: the International Statistical Institute (ISI), the International Association for Official Statistics (IAOS), the Royal Statistical Society (RSS) of the United Kingdom, the American Statistical Association (ASA),

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\textsuperscript{54} To cite just a few examples: The Economist, “Significant Figure. The hounding of Greece’s former statistics chief is disturbing”, \textit{The Economist}, Finance and Economics, June 14, 2018; Editorial Board, “Greece scapegoats a statistician who only did his job”, \textit{The Washington Post}, August 4, 2017; Megan Greene, “By convicting an honest statistician, Greece condemns itself”, \textit{Politico}, August 2, 2017; Catherine Rampell, “A number cruncher told the truth. He became his country’s public enemy No. 1”, \textit{The Washington Post}, January 2, 2020.

the Federation of European National Statistical Societies (FenStats) and the French Statistical Society (SFdS).\textsuperscript{56}

Andreas Georgiou returned to the US the morning after his resignation as President of ELSTAT on August 3, 2015. He is currently a visiting professor at \textit{Amherst College} and is persevering in his defence of himself and of official statistics around the world.

\section*{PUERTO RICO}

The Puerto Rico Institute of Statistics (PRIS) is an independent government agency that has a legal statute protecting the impartial production of information, which provides for the appointment of its Executive Director for fixed periods of 10 years and a Board of Directors composed of experts.\textsuperscript{57}

However, in 2018 Governor Ricardo Roselló presented a proposal to the Local Legislature to replace the Institute with the so-called Puerto Rico Statistics Programme, which would be located within the Department of Economic Development and Commerce (DEDC). This proposal would remove both the position of Executive Director and its Board of Directors, and the DEDC would be left in charge of subcontracting the information producing functions to external entities.\textsuperscript{58}

The initiative was presented as a potential for cost savings in data generation and to ensure impartiality of the information, although no explanation was given as to how the Fundamental Principles of Official Statistics would be applied in this scenario and what measures would be required to ensure the quality, use and confidentiality of the data.

\begin{flushright}


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The proposal had been preceded by Roselló’s decision in 2017 to replace four statistical members out of seven of the PRIS Board of Directors by making use of newly assumed powers under Law 3 of 2017, which allows the Governor to dismiss members of government boards if they are not in their circle of confidence. Among others, he appointed the President of his government’s Planning Board to head the Board of Directors, which was seen as calling into question the independence of PRIS.59

In September 2017, Puerto Rico was devastated by Hurricane Maria, which caused great economic damage and a high death toll. Despite serious shortcomings in accurately measuring the number of deaths, the government entrusted the Ministry of Health with this statistic, excluding the participation of PRIS, amidst multiple reports that the government’s figure of 64 deaths did not correspond to the reality that was easily estimated to be over 1,000.

In view of the possibility that the Governor’s bill would lead to the disappearance of PRIS, there was a strong response from both the Institute and the American Statistical Association (ASA), which was supported by more than 47 scientific organisations from all over the world and signed by 3,000 people (including prestigious scientists and at least one Nobel Prize winner), who urged Roselló and the Local Legislature not to approve this proposal.60

The latter rejected the Governor’s initiative on July 3, 2018, thus preserving the independence of PRIS but leaving open the possibility of returning to the issue at a later date.61

However, the tribulations of PRIS had not completely ceased. Mario Marazzi, its Director since 2007 and who had actively defended the independence of the Institute in recent years, resigned on February 11, 2019. In his letter of resignation he describes the PRIS

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Board of Directors as illegal because it was made up of more than one government official (which is against the law governing the institution) and accuses those he calls illegal members of the Board of having made political donations and having close economic ties with the government of Puerto Rico.\textsuperscript{62}

Ricardo Roselló, amidst citizen protests, resigned as governor of Puerto Rico on August 2, 2019 as a result of the publication of a series of conversations in a chat group where he and other officials of his administration made comments of a highly misogynistic and homophobic nature, jokes about the victims of Hurricane \textit{Maria} and even an apparent death threat against the Mayor of San Juan.\textsuperscript{63}

\textbf{RURITANIA}\textsuperscript{64}


Actor: President of a statistical office of a Latin American country, who will remain anonymous - like other entities and persons who might be inconvenienced by what is narrated here - and will therefore be identified as P-ONE.

Interlocutor: (I) also anonymous, at least for now, attendee to the UNSC, of a different nationality to P-ONE.

P-ONE — You’ll never believe what’s just happened in my country.


P-ONE — Some guys from an American university and a local non-governmental organisation have just published a victimisation survey in my country.

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\textsuperscript{63} Frances Robles y Patricia Mazzei, “Ricardo Roselló Steps Down as Puerto Rico’s Governor, and Pedro Pierluisi is Sworn In”, \textit{The New York Times}, USA. August 2, 2019.

\textsuperscript{64} In academic discussions, term used for an unspecified country. It refers to a nation that is a scene of intrigue (\textit{The New Shorter Oxford English Dictionary} (Oxford: Clarendon Press, 1993)). It originates from an imaginary kingdom in Central Europe, the setting for Anthony Hope’s The Prisoner of Zenda (1894).
I —Really?
P-ONE —The worst of it is that the results show several times more victims than we had identified in our own survey not long ago.
I—Sounds serious.
P-ONE —Really serious, it’s an offense to both our country and our statistics office. Just imagine, they are trying to say the crime situation is out of control.
I —What are you going to do?
P-ONE —For now, I’ve already spoken to the President of the Republic to explain the situation to him.
I —What did you say?
P-ONE —Of course I told him that the figures these guys presented were incorrect, that they don’t even know how to conduct surveys, they don’t have the experience and quality that we do.
I —How did he take it?
P-ONE —I think he was pretty relaxed, but I’m thinking of taking this issue further.
I —What are you thinking?
P-ONE —It’s actually the reason I wanted to speak to you. These kinds of situation shouldn’t happen in any country. I’m thinking of promoting, starting with the countries of the region, an initiative with the UN to prohibit the undertaking of victimisation surveys for everyone except national statistical offices, as we’re the only ones with the necessary capacity and knowledge to carry them out. The fact that they are conducted by underqualified institutions is highly irresponsible and could easily confuse the general public. What do you think?
I —[Great surprise of the interlocutor] ¡Hum! How will you do it?
P-ONE —I’m considering drafting a letter to the Secretary General of the UN that I would like to circulate among the delegates of the UNSC to be signed.
I —It’s certainly an interesting idea.
P-ONE —Do you really think so?
I —Hum!... well yeah, you could look into a way of stopping these types of situations from happening again and put an end to spurious statistics.
P-ONE —I’ll draft it and look for you tomorrow.
Luckily, P-ONE no longer appeared with his draft letter in the remaining days of the commission. Perhaps he came to his senses, or probably some more charitable soul made him see the folly of his proposal.

This incident, although scepticism is understandable regarding what may have happened in reality, is not a product of the author’s imagination. It serves to illustrate that the temptation to manage information doesn’t exclusively or necessarily come from just governments. It is maintained in anonymity by the tendency of many authoritarian characters to become dignified when on display. On the other hand, however, it offers them the possibility of confirming (perhaps involuntarily) the existence of the denied situation or their participation in it. Denying non-existence is, after all, a statistical feat.

Consistent with this last paragraph, and hoping that the commentary will serve to highlight the risks and damages that have been suffered in a personal way by distinguished - and courageous - official statisticians in recent times, the author has preferred to exclude from mentioning, among his sources in this book, information provided personally or even the articles written by some of them on the problems faced by their NSOs. No one can deny that statistical and geographical practice can also be hazardous (and highly dangerous).

11.3. Risks to data integrity

The situations described above offer a wide range of modalities with characteristics according to circumstances and times. In all of them the authorities are the villains, although there is no lack of cases in which they have allies within the institutions responsible for producing information. Although these are typically authoritarian actions—some of extreme cruelty—for placing the interests of an authority above those of the individual, they are not necessarily the exclusive preserve of countries considered despotic as democ-
racies can also have slips of this kind. The most developed nations are not free from contagion, nor is it exclusive to regions or political affiliations, and we have already seen that geographical or environmental activities are not exempt from risk either.

What they all have in common is that the integrity of the data is being undermined, a concept that brings together all the characteristics (truthfulness, quality, timeliness, accessibility and confidentiality) necessary for the information to meet in order to fully satisfy the basic right of individuals to know and understand their reality. A synonym for this integrity would be that of the honesty of the data, which therefore refers to the honesty of the State, which is responsible for producing it.

Although not alone, the State - understood as the authorities that make it up - is generally the most common transgressor, as it holds power in each society and has the potential to place itself more frequently in a conflict between what it considers its political interests and information about reality when its expectations and/or promises are not translated into the expected results. The demagogic variety is the most conducive to this type of conflict, as by its very definition, deception is an inherent trait.

It is also important to specify that, in these cases, the interests that are presented as those of the State are, in fact, the interests of the individual or group that holds power. In fact, by harming the collective, the damage can be reversed both on the State and on its authorities. Let us not forget that, at the end of the day, reality is not being used to administer, in its fullest sense of governance, a country. This can also have real consequences.

A grouping of the key risks:

1. Pressure on, or direct instruction to, the data producing agency to manipulate information. Although it may seem extreme, it is a situation that can occur with relative impunity and even not be easily detected in countries with
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institutions attached to the government’s hierarchical structure in which the head(s) of the agency(ies) is (are) dependent for his or her appointment on the Federal Executive, which is not subject to, or does not respect, the technical criteria for making such appointments. In most of these cases, legal regulation to protect the independence of the agencies ranges from deficient to nonexistent. It relies on the complicity of those responsible for the information, but it can also lead to termination and other consequences, as we have seen, for managers who try to resist such pressure.

2. Disqualification of the veracity of the information. It may or may not be accompanied by the substitution of alternative data. It is a variant of the fashionable fake news. A diminished or minor version would be presented when, without putting in doubt the results, its relevance to measure reality is ruled out by the authority.

It finds a favourable climate in the feeling of mistrust on the part of the public towards technical knowledge, which is seen to be linked to technocratic elites and which has occurred, perhaps, somewhat surprisingly in some advanced countries, as we saw in the previous chapter in the case of the United Kingdom and which is associated with political phenomena such as Brexit and the election of populist leaders in various nations of the world. In Chapter 5, section 5.2, the situation INEGI faced was narrated, when several mayors of the country did not accept the figures of the 1990 General Population and Housing Census because they considered them to be lower than they assumed or was convenient for their own interests. In all cases, they were offered to review the data by means of field visits to a sample of blocks with the aim of comparing results; this was not accepted in any case, nor did they present alternative surveys that could contradict the INEGI figures, which prevailed as official and were proven to be consistent with numerous subsequent statistical exercises.65

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65 Mario Palma Rojo, “Que no le cuenten”, Revista Voz y Voto, no. 320, October 2019, pp. 16-20.
3. Budgetary pressures. Having a sufficient budget is vital for the proper functioning of information producing agencies which, due to the magnitude of their programmes and operations, as well as the technological and human requirements involved to carry them out, require costly investments that must come from the national public budgets where, from the outset, there is competition for limited resources with all public administration programmes.

In the previous chapter it was presented as one of the great challenges that every information production agency must resolve year after year. This is further complicated by the addition of political pressure to the annual budget negotiation.

4. Co-operation of managers of independent information-producing agencies. This risk applies in cases where the data generating office legally enjoys a degree of relative independence from the executive branch of government and there are formal procedures and technical expertise requirements for making appointments at the highest level.

It requires the complicity of officials appointed prior to the arrival of the offending authority or of its candidates for vacant positions. It is fought with ethics and an internal institutional governance that restricts the process of production, publication and access to information strictly to technical considerations, excluding subjective assessments or votes on the data obtained, as the Board of Directors of the Greek Institute of Statistics (ELSTAT) intended at the time.

In the case of INEGI, as we have seen, there is a clear division of functions between the production and publication of data that corresponds to the administrative structure led by the President of the Institute and the regulatory functions of the Governing Board defined in the Law on the National System of Statistical and Geographical Information (LSNIEG).

5. Reduce or eliminate the independence of information-producing agencies by amending the laws. This is the most serious risk, but perhaps the least likely, that legally autonomous institutions can face because of the national
and international political attrition that would be incurred by those who promote it and the practical complications of obtaining the necessary legislative majorities.

Mexico has enshrined, in its Constitution, the autonomy of its statistical and geographical information production agency, INEGI. This is not only a guarantee for Mexicans of complete adherence to the principles governing data integrity, but is also a source of prestige for the country and of security and confidence in the data for our international partners.

6. Use of information produced by other actors. This hypothesis may or may not be accompanied by a legal amendment. This was the case with the failed attempt by the Governor of Puerto Rico to commission the production of information by subcontracting external private agents. This measure implied the disappearance, as such, of the State statistical office, and also presented serious problems regarding the quality of the information, as well as its use and confidentiality. Fortunately, it did not prosper, and although its implementation would be complicated for any government, there is always the danger of altering or diminishing the independence of the agencies through legislation.

CURES & DEFENCES

International experience offers valuable lessons of the risks to information integrity. It is incumbent upon national statistical and geographical offices responsible for the official production of information to address external pressures on data integrity. Their effectiveness in this task will depend on the degree of independence they have and can exercise vis a vis their country’s executive branch.

The existence or not of a legal statute that enshrines the observance of the Fundamental Principles of Official Statistics (also applicable to geography) and establishes governance allowing them to exercise, also in reality, their technical independence are indispensable requirements for those aspiring to the autonomy of an institution.
In Mexico, as of 1983, INEGI would exist as what is called a decentralised administrative body of the Federal Public Administration (APF) - a classification usual in the tradition of the French public administration, although not commonly used in Anglo-Saxon countries and others - which, although it maintains an entity hierarchically dependent on the public administration, grants it technical independence for the carrying out of its functions. With the subsequent constitutional autonomy statute of 2006, it became autonomous of the State powers with a special status within the APF because of this feature, as we saw in Chapter 8, section 8.3.

Each legal system must determine, in accordance with its characteristics and traditions, both the way in which it will translate this quality of independence into its systems and the hierarchical level of the law, or laws, in which it is enshrined. In the case of INEGI, we sought to guarantee this condition at the highest level among the various laws of the country to reflect the legal, but also political, importance of the status conferred on the Institute.

However, this experience is not necessarily transferable to other countries in the world, either because of political resistance or for legal reasons, as the various legal traditions do not necessarily raise to a constitutional level provisions that they consider to be of a public administrative nature. This issue was discussed in the working groups that reviewed the Fundamental Principles of Official Statistics at the UNSC and in other forums, where the consensus reached was that the principles should be legally enshrined at the highest level permitted by the legal system of each country.

For the time being, constitutional autonomy should remain an ideal - already being pursued by some countries, especially in South America - to be achieved when legal and political circumstances allow it, which does not prevent it from serving as a beacon today in illuminating the aspirations of information-producing offices.

Any legal status of independence, to be effective, must establish its basic foundations and the governance of its functioning. In the case of the production of information, it must be based on its adherence to the Fundamental Principles of Official Statistics and
others applicable by regional and national provisions, as well as on the codes of ethics established in accordance with tradition and internationally accepted practices.

The governance of the institution and its independence requires the following issues to be considered: processes for appointing directors according to requirements of knowledge and technical experience; the participation of more than one of the branches of government in the appointments; the staggering of these appointments and their scheduling in relation to the presidential terms of office; the duration of the assignments and permanence in the post; recognition of the official and obligatory nature of the information produced; the attributes of producer and coordinator of the information system; monitoring and auditing; the quality of the data and, in general, rules for the application of the fundamental principles in the practical operation of the institution.

Legal regulation, while indispensable, cannot in itself guarantee that the independence of information-producing agencies will be respected. It is up to these agencies to build, based on the instruments provided by the legal governance they have been given, a solid national information system based on, and prestigious in, the quality of the information it provides to the public and the government, whose crucial mission, in the case of governments, is to achieve recognition of the value of this information and its regular use in public policies.

However, the most important barrier to containment will always be the concerted action that society as a whole may present to any attempt, either to manipulate information or to compromise the independence of statistical and geographical offices. Here the role of public opinion, political parties, civil society and the media in defending the collective right to information becomes crucial for its preservation.

**An interesting measure for risk reduction**

On June 11, 2013, amendments to Article 28 of the *Political Constitution of the United Mexican States* created the Federal
Commission for Economic Competition (COFECE) and the Federal Institute of Telecommunications (IFT) as autonomous bodies.

The purpose of COFECE is to ensure free competition, to combat monopolies, monopolistic practices, concentrations and other restrictions on the efficient operation of markets. The IFT aims at the efficient development of broadcasting and telecommunications and is the economic authority for these two activities.

Its governing bodies are made up, in each case, of seven commissioners who are appointed in a staggered manner on the proposal of the Federal Executive with the ratification of the Senate. The commissioners must meet a series of requirements, including accrediting the technical knowledge necessary to perform the duties; these must be fulfilled before the Evaluation Committee made up of the incumbents (who cannot designate substitutes) of the Bank of Mexico (Banxico), the National Institute for the Evaluation of Education (INEE) and INEGI.

This Committee issues public calls to fill the vacancies that arise, verifies compliance with the requirements and, once these are satisfied, applies the respective knowledge test. It then sends the Federal Executive a list for each vacancy with a minimum of three and a maximum of five candidates with the highest passing grades, from which it selects the candidates to be proposed to the Senate.

The Committee established an Assessment Model for the procedure and elaboration of the corresponding examinations with the advice of three specialists from the OECD, which included experts with experience in Great Britain and Spain in the implementation of these qualification instruments, and from the main higher education institutions in the country, these included the National Autonomous University of Mexico (UNAM), the Centre for Research and Advanced Studies (CINVESTAV) of the National Polytechnical Institute (IPN), the Centre for Aerospace Development of the IPN, the Centre for...
Research and Teaching in Economics (CIDE), the Autonomous Technological Institute of Mexico (ITAM) and the Monterrey Institute of Technology and Higher Education (ITESM).

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With the participation of 37 leading academics from these institutions, subjects were defined and content was developed to integrate a bank of questions. This was done through an encryption process in which the questions asked were not shared among them. For COFECE, an exam was prepared with subjects in law and economics, and for the IFT, in addition to these areas, an engineering section was included.

This process has been followed from 2013 to date for the appointment of the commissioners of both autonomous bodies. Thus, by assigning this function to three autonomous institutions, the assessment of the fulfilment of the technical requirements to exercise the position of commissioner has been separated from the political process of Executive-Legislative (Senate) appointments. With the disappearance of INEE at the beginning of 2019, the Assessment Committee is now only composed of Banxico and INEGI.

International organisations, both regional and global, to which a country adheres through legal instruments implying an obligation to provide data in good faith about its national reality, play an important role in defending the integrity of information by establishing quality standards for their reporting, as well as by the pressure they can exert against offending nations, as we have seen in the cases of Greece and Argentina.

Finally, the active international community of professional associations such as the International Statistical Institute, the International Association for Official Statistics, the six other sister associations of the ISI - covering all specialised areas in the world of statistics - national statistical and geographical societies, scientists, specialists, academics and users of all kinds from the public, private and social sectors, as well as the media, constitute a forum with global ramifications that has identified the issue of independence of information producers as one of its main concerns.
This community, present in all international organisations and forums, follows up on cases where countries commit violations of the Fundamental Principles of Official Statistics and, by various means, has exerted their support and solidarity with information-producing agencies, as well as individuals affected by government actions against the integrity of the data. Its action in the case of Puerto Rico, led by the American Statistical Association with the support of the Royal Statistical Society of the United Kingdom and 45 other associations, was decisive in preventing the proposal to disband the local statistical office from succeeding. In the same vein, it is worth noting the already mentioned participation of distinguished international statisticians who even went to Greece to testify on behalf of Andreas Georgiou in some of the many trials he has faced in his country.

These are the instruments that information production agencies have at their disposal to protect the integrity of the data. As we have mentioned, experience shows that they are all very useful, although one can never have an absolute guarantee that governments will refrain from at least attempting to interfere with or manipulate the data. However, also based on experience, we can state that they fulfil the basic function of significantly increasing (and complicating) the costs for the potential offender.

Finally, potential offenders should be reminded of some circumstances which, while difficult to digest for those bent on manipulating information to their advantage at any cost, are worthy of consideration. First, in today’s globalised world it is practically impossible for fraud involving relevant statistics not to be detected on an international level; to appreciate its futility, look to the cases of Argentina and Greece.

The other not inconsiderable circumstance is the ability of truth to emerge sooner or later, despite extreme efforts to suppress it. Anyone who doubts this could ask Stalin about his 1937 census. Nor is it an ominous desire per se - although deserved -, it is simply based on the permanent development of statistical instruments, new sources of communication (social networks) and the persistence of numerous historians and statisticians in discovering the truth.
INEGI, guardian of the truth

INEGI is the institution to which Mexico has entrusted the task of informing the nation of everything that happens in our environment that can be expressed in a statistical or geographical way. This information as a whole intersects with all aspects of human life and is therefore indispensable for the nation’s development and well-being, both as a society and as individuals, in fact, ultimately for our survival as such. Its intrinsic requirement is its veracity.

The history narrated in these pages has led us along the path that the Institute has taken since its foundation in 1983 to the present day, through the successive creation of multiple programmes that became more and more varied, further exploring aspects of the social, economic, geographical and environmental reality of the country. All these programmes have been designed under the premise of being carried out in accordance with quality standards, recognised as the most advanced around the world. Along the way, the Institute has had to learn, adjust and improve.

It has also developed, through recruitment, training and experience, the human capacity necessary to carry out this wide range of projects requiring both scientific and technical knowledge - including the use of advanced technologies - and logistical preparation and experience to carry out continuous field operations throughout Mexico.

In this journey of almost four decades, INEGI has coexisted with practically all the population, businesses and government units in the country that have entrusted it - through censuses, surveys and administrative records - with the information which, along with that obtained through intense interaction with its users from all sectors of society, supports its raison d’être.

Likewise, throughout this time, INEGI, on numerous occasions, has responded quickly to requests for information not con-
templated in its traditional work programmes as a result of both economic crises and natural disasters, in addition to being called upon as a major player participating in relevant Federal Public Administration (APF) projects.

Nor has it been exempt from suffering losses, both human and material, as a result of the onslaught of natural phenomena that even led to the relocation of its headquarters to the city of Aguascalientes, an episode that helped to shape the history and character of the institution.

Today, INEGI has consolidated one of the broadest schemes of statistical and geographical information production in the world, accredited to its national and foreign users through the transparent publication of its methodologies, metadata and results, as well as the variety and exhaustiveness of its sources and data collection instruments.

INEGI’s programmes are governed in all their stages by its Permanent Quality Programme, which is transversal to all activities and areas of the institution and is permanently subject to internal and external review and evaluation, in accordance with the strictest international standards.

It is also one of the most active information-producing agencies in international statistical and geographical forums at both the regional and global levels, where it has held leadership positions on relevant issues, such as the synergy between Statistics and Geography, the measurement of Sustainable Development Goals, crime, drugs and corruption, among others.

The Institute also prepares for the great challenges that lie ahead, making advancements in research, the adoption of cutting-edge methodologies and the development and testing of innovative programmes that use Big Data and other IT tools.

The institutional mandate and commitment to produce and disseminate data to the highest standards of quality has been accompanied, since the creation of INEGI, by a concern for how to
protect information so that it is free from any possible interference, pressure or consideration other than that of a purely technical nature.

In this sense, the decree creating INEGI recognised the need for the provision of a legal regime that would separate the institution’s technical work from the administrative and political logic in which the national public administration operates. The legal figure was that of a deconcentrated body, giving it technical autonomy to carry out its functions while maintaining a hierarchical dependence on a ministry of the APF.

Although, at the time, it marked an advance in relation to the status of the offices that preceded it, this new regulation kept the institution in the sphere of public administration, susceptible to the unwritten political pressures present in every bureaucratic instrument of the State.

As we have seen, it was a clear aspiration - even before the formal birth of the new institution - to achieve a legal status fully guaranteeing the independence of the Institute for the fulfilling of its eminently technical task of producing information. It was only achieved after exhaustive promotion of the issue by INEGI itself and through negotiations between the country's main political parties that culminated in the 2006 constitutional reforms and the subsequent issuance of the Law on the National System of Statistical and Geographical Information (LSNIEG) in 2008.

In this way, the Institute was confirmed in its role as producer of quality information and regulatory body and coordinator of the National System of Statistical and Geographical Information (SNIIEG), in addition to being given autonomy from State powers, thereby conferring upon it the mission of protecting data integrity, that is, that the country and all its inhabitants, on an equal footing, may know and understand the truth about what is happening in their environment.

This is INEGI’s ultimate mission. Its preservation is essential both for social and economic development and for the democratic life of the country.
A. INEGI’s presidents (1983-present)

<table>
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<tr>
<th>President</th>
<th>Term</th>
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<tbody>
<tr>
<td>PEDRO ASPE ARMELLA</td>
<td>JANUARY 25, 1983-JULY 15, 1985</td>
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<tr>
<td>ROGELIO MONTEMAYOR SEGUIY</td>
<td>JULY 16, 1985-MARCH 31, 1988</td>
</tr>
<tr>
<td>HUMBERTO MOLINA MEDINA</td>
<td>APRIL 1, 1988-NOVEMBER 30, 1988</td>
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<tr>
<td>CARLOS JARQUE URIBE</td>
<td>DECEMBER 1, 1988-AUGUST 5, 1999</td>
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<tr>
<td>ANTONIO PUIG ESCUDERO</td>
<td>AUGUST 6, 1999-APRIL 18, 2001</td>
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<tr>
<td>GILBERTO CALVILLO VIVES</td>
<td>APRIL 19, 2001-AUGUST 26, 2008</td>
</tr>
<tr>
<td>EDUARDO SOJO GARZA-ALDAPE</td>
<td>AUGUST 27, 2008-DECEMBER 31, 2015</td>
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<tr>
<td>JULIO ALFONSO SANTAELLA CASTELL</td>
<td>JANUARY 1, 2016-PRESENT</td>
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B. Letter from John B. McLenaghan, director of the Department of Statistics of the International Monetary Fund, to Carlos Jarque, president of INEGI, December 27, 1995

Estimado Dr. Jarque:

Por la presente quisiera agradecerle sus valiosas aportaciones a la iniciativa del Fondo con respecto a la adopción de normas sobre la publicación de datos económicos y financieros. Las conversaciones sostenidas con usted y sus colegas en las misiones que tuvieron lugar recientemente y el trabajo realizado por ustedes para elaborar presentaciones de datos que podrían incluirse en la cartera de información electrónica propuesta han sido fundamentales para el desarrollo de este proyecto, al cual el Fondo asigna especial prioridad.

Uno de los principales comentarios que hemos recibido de los usuarios de los datos es que la utilidad de la cartera sería mucho mayor si los datos descritos también se pudieran obtener por vía electrónica. En las conversaciones que sostuvimos en México, pudimos observar el extraordinario ahorro que ustedes han registrado en el suministro de datos a los usuarios a través de la red Internet y otros medios electrónicos. Puesto que quieras que sea el medio más práctico de vincular la información de la cartera con los datos reales, tendríamos mucho interés en conocer los resultados obtenidos por ustedes en el desarrollo de sistemas electrónicos de divulgación de datos.

Las siguientes preguntas se refieren a algunas de las principales infracciones que tienen los organismos con respecto a la divulgación electrónica de información, pero los agradeceríamos que nos transmitieran sus comentarios con respecto a cualquier otro aspecto que haya resultado importante en el desarrollo de sus sistemas.

Objetivos: ¿Cuáles fueron los principales objetivos que llevaron a considerar la divulgación electrónica de datos? ¿Fue un motivo el aumento de los ingresos?

Plano de ejecución: ¿Cuándo se iniciaron los planes de divulgación electrónica de datos y cuándo concluyó el proyecto? ¿Fue muy diferente el plazo que demoró la ejecución del proyecto del plazo previsto inicialmente?

Otras ventajas: ¿Qué otros medios electrónicos de divulgación de datos se estudiaron además de Internet (por ejemplo, un servidor local de uso específico)? ¿Cuáles de los siguientes factores se tuvieron en cuenta para tomar la decisión final?

- facilidad de desarrollo y mantenimiento
- facilidad de acceso para los usuarios
- seguridad del sistema
- método empleado por otras entidades en el país
- método empleado por otras entidades en el resto del mundo

Obstáculos: ¿Cuáles de los siguientes fueron los principales obstáculos para el desarrollo del sistema?

- costo de desarrollo
- costo de los equipos
- costo de los programas y sistemas
- mantenimiento y servicios al usuario
- existencia a nivel local de personal técnico capacitado
Utilización. ¿Hacen ustedes un seguimiento y un análisis del número de veces que los
usuarios obtienen acceso al sistema? ¿Cuentan con los medios para saber quiénes obtienen acceso
al sistema? En caso afirmativo, ¿quiénes son los principales usuarios del sistema?

Funcionamiento y desarrollo futuro. ¿Cuáles son las dificultades cotidianas y cuáles los
principales problemas que plantea el funcionamiento del sistema? ¿Planean ustedes introducir
alguna mejora en el sistema?

Sin otro particular, saludo a usted atentamente,

John B. McLoughlin
Director
Departamento de Estadística

Dr. Carlos Jaque
Presidente
Instituto Nacional de Estadística
Odón García e Información
Prof. Héroe Nacozari 2301 Sur
Puerta 7, Nivel 2 - Ciudad Industrial
Aguaclavientes - Código Postal 20301
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c: Dr. Armando Baquero Cárdenas
Director de Organismos y Acuerdos
Internacionales
Banco de México
Avenida 5 de Mayo No. 20, Piso 3
06059 México 1, DF
Facsimile: (52 5) 237 2432

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**OFFICE MEMORANDUM**

**DATE:** November 8, 1995

**TO:** Mr. B. Blazic-Metzner, Team Leader, IECDD

**FROM:** Sheida Badiee, Senior Manager, IECDD

**EXTENSION:** 33630

**SUBJECT:** Terms of Reference: Mission to Mexico

1. On or about December 2, 1995, you will proceed to Mexico to lead a joint World Bank-OECD national accounts mission including Messrs. David Cieslikowski and Wioleta Marczewski. The mission will:

   - develop an overview of the whole structure of the national accounts and how they are estimated in the context of the revisions proposed in the 1993 SNA and current economic structure. Mr. Marczewski will concentrate on the expenditure side of GDP while you and Mr. Cieslikowski will concentrate on industrial origin of GDP;
   - investigate possible data gaps and determine what resources may be necessary to fill them;
   - look at input-output tables and household surveys and other sampling procedures used to generate national accounts aggregates and assess their accuracy and relevance;
   - review the base-year choices, weights and index/aggregation structures used implicitly and explicitly in compiling national accounts estimates;
   - assess how these may need to be revised to reflect better the changing structure of the economy— the changing relative roles of sectors, regions, and
   - evaluate the accuracy and usefulness of the quick estimation methods adopted in certain contexts.

2. The mission will outline its preliminary findings in an aide-memoire that it will leave with the Government at the conclusion of the mission. The mission’s more detailed assessment of the existing national accounts and its recommendations for improvement will be presented in a report to be submitted to the Government within 3-4 weeks of the mission’s return. Based on discussions with the Government, the report will propose a program of technical support for the updating and improvement of national accounts in areas that the mission will have identified. The mission will coordinate its work closely with the Bank’s Mexico country department.

Cleared with and cc: Mr. Z. Qureshi (LA3CO)

cc: Messrs. M. Ahmed (IECD); D. Blades, W. Marczewski (OECD); D. Cieslikowski (IECD)
Aide Memoire

Review of current and planned methodology and measures of national accounts of Mexico

1. On the invitation of the Secretaria de Hacienda y Credito Publico (SHCP) of Mexico, the mission was asked to review the current and planned methodology of the Instituto Nacional de Estadistica Geografica e Informatica’s (INEGI) national accounts compilation methods. Initial discussions took place with staff from SHCP, the Banco de Mexico and INEGI, with an additional meeting at the Banco de Mexico. Further discussions in Mexico City with staff from INEGI’s Dirección General de Contabilidad Nacional—Estudios Socioeconómicos y Precios were conducted, and a visit to INEGI headquarters in Aguascalientes gave the mission an overall view of the institution’s integrated work on socio-economic statistics, geographic information, informatics, and dissemination. The mission would like to thank staff from each agency visited, and notes that the full, transparent, and professional cooperation of INEGI staff enabled the mission to work in an atmosphere of cooperation.

2. The mission reviewed details of coverage, currentness, sources, and methodology, and concluded that INEGI’s estimates of quarterly and annual

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1 Mission members: Boris Bblzie-Metzner and David Cieslikowski, International Economics Department, World Bank; December 4-8, 1995
national accounts series are very strong. Stimulated by policies of economic reform and market liberalization, important structural and institutional changes are currently being implemented that will carry the country forward with strengthened productive capacity into the next century. INEGI’s modernization program, now in its sixth year, has positioned the institution to monitor structural changes and socio-economic progress, enabling it to provide the information necessary to identify the various policy issues confronting developments as they arise. This includes work on institutional sectors and research on “green” accounts which will provide additional information for policy makers. Traditional delivery of this high quality information has been revolutionized by electronic delivery such as fax, CD-ROM, and the INTERNET, as well as public information programs to meet the demands of public institutions, the increasing needs of the private sector, and the population in general.

3. Unlike statistical offices in many countries, which are scholarly institutions where cautious conservatism prevails, INEGI has adopted a forward-looking perspective to address emerging policy imperatives such as poverty, land titling, and the environment, while strengthening the continuity and reliability in its officially published socio-economic series. One clear challenge facing Mexican authorities is to develop improved mechanisms to facilitate communications between information providers and users of macroeconomic data, especially at the technical level. In this regard, it is important that INEGI continues to seek feedback and to provide
adequate documentation on methodology, sources, etc. to ensure that the data provided fulfills the needs of policy makers, thus minimizing supplemental data collection and estimates by user agencies.

4. More specifically, INEGI's national accounts estimates are based on a broad base of basic data collection, supported by 10 district offices which in turn have links covering every state. Basic data are collected on a regular, and current basis (e.g. economic census every five years, household income and expenditure survey every year, and monthly collection of data on maquiladoras, etc.) via:

- National censuses (population, economic, and agriculture)
- Sample surveys (household income and expenditure survey, establishments, maquiladoras, construction, retail and wholesale trade, private sector services, and mining).
- Administrative records (updating registers of new establishments, customs based foreign trade transactions, public finances, etc.)

This wealth of basic data collection instruments captures newly emerging economic activities in the both formal and informal sectors (however, illegal activities are not captured), which is then implicitly incorporated in the annual re-weighting of the series. Therefore the relative weights are changing over time to reflect the current structure of the economy rather than those established in the 1980 input/output exercise.
5. Following the SNA recommendations for periodic updating of the national accounts base year, INEGI has been developing a new national accounts series with a 1993 base year (based on the 1993 UN SNA manual) for the past year and a half. INEGI has chosen 1993 as the base year for several reasons:

- data available from the 1993 economic census
- expanding of the monthly industrial survey from 129 activities to 205 activities (3,000 to 5,000 products)
- increased periodicity of the services survey from annual to monthly
- census of the maquiladoras
- data available from the 1992 household income and expenditure survey
- data available from the national demographic and employment survey
- relative price and exchange rate stability

The mission believes that this exercise, scheduled to be released in May, 1996, will continue to provide policy makers and other users very good measures of economic activities in Mexico.

6. In conclusion, the mission believes that the way in which work is conducted by INEGI is excellent, the basic data collected is fully adequate, and current and planned methodology for national accounts compilation meets high standards.


Why INEGI? The saga of a Mexican institution in search of the truth

INEGI. Why INEGI? The saga of a Mexican institution in search of the truth. 2020.


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Why INEGI? The saga of a Mexican institution in search of the truth.

INEGI. Why INEGI? The saga of a Mexican institution in search of the truth. 2020.
Why INEGI? The saga of a Mexican institution in search of the truth.

___ Oficio núm. 1.4.3./A-011/2007. Addressed to Armando Rangel Hernández (Director in chief of the National Agrarian Registry) by Juan Manuel Yglesias (Director general of the National Register of Geographical Information of INEGI), with the objective of finalising the commitments established in the Coordination Bases for the Transfer of PROCEDE Information collected by INEGI to the National Agrarian Registry. April 2, 2007.


Sistema de Clasificación Industrial de América del Norte, México SCIAN 2018.


“Uso de imágenes de satélite para el conocimiento del territorio nacional”.


INEGI-Banco de México. “Contrato de licencia de uso no exclusiva e intransferible que celebra, por una parte, el Banco de México [...] y por la otra, el Instituto Nacional de Estadística y Geografía [...]”. Mexico. October 12, 2010.

“Convenio de colaboración que celebran, por una parte, el Instituto Nacional de Estadística y Geografía [...], representado en este acto por su presidente, Eduardo Sojo Garza Aldape y, por la otra, el Banco de México, representado por su gobernador, Agustín Guillermo Carstens Carstens [...]”. Mexico. October 12, 2010.

“Convenio modificatorio al contrato de licencia de uso no exclusiva e intransferible que celebran, por una parte, el Banco de México [...] y por la otra, el Instituto Nacional de Estadística y Geografía [...]”. Mexico. July 14, 2011.

“Convenio para realizar el levantamiento de información para la elaboración de los índices de precios (INPC e INPP), que celebran, por una parte, el Banco de México [...] y por la otra, el Instituto Nacional de Estadística y Geografía [...]”. Mexico. October 12, 2010.


“Two core issues... the need to **properly measure reality** and to do so **independently**... are preoccupations common to all societies.”

“The **right to information** is basic to all human beings... indispensable for integral personal development.”

“When measuring... the results of **public policies**... are also measured.”

“An indispensable requirement for effective **participation in democratic processes**.”

— MARIO PALMA —

**WHY INEGI?**

The saga of a Mexican institution in search of the truth.
The book presents the National Institute of Statistics and Geography, what is and how it has developed over time, since it was founded in 1983. The Institute is today an eminently technical and at the same time autonomous body of the Mexican State.

Beyond a chronology of events, this book raises two needs that have marked the Institute’s evolution: the first, to properly measure the many components of reality, whether social, economic or natural; and the second, decisive for the public’s trust and whose absence would invalidate the purposes of the previous need, to preserve the information from any consideration, other than strictly professional, in all stages of its production and dissemination.

This work conveys INEGI's transcendence as an indispensable institution for the country to respond to the fundamental question, common to all human beings: to know and understand the reality of their environment.