

INTEGRATING AGRICULTURE INTO NATIONAL INFORMATION SYSTEMS: THE CASE OF MEXICO

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ABSTRACT

In Mexico, there is a decentralized system regarding agricultural statistics: INEGI (*Instituto Nacional de Geografía y Estadísticas*) is the government agency responsible for conducting population, economic and agricultural census. The Ministry of Agriculture (*Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación*, SAGARPA), through its agency SIAP (*Servicio de Información Agroalimentaria y Pesquera*) is in charge of non structural statistics, such as areas planted and harvested, yields and production of the main crops, and meat and dairy products, in both cases on a monthly basis and at state level.

For many years, SIAP relied on technicians working in Rural Development Districts (RDD) to collect and submit information about agriculture production. Most of those technicians reached their age for retirement in recent years and they were not replaced due to budgetary restrictions. On the other hand, also because of the lack of resources, INEGI could not conduct an agricultural census during a long period. Until 1991, this census took place every ten years, but in 2001 Mexico was facing a severe economic crisis that led to an extremely tight budget. It was in 2007 when the Congress approved enough resources to carry out the VIII Census of Agriculture.

Indeed, the facts described above weakened Mexico's institutional capacity to support and develop its agricultural statistic system. Nonetheless, two major modifications in the legal framework were issued in recent years that had contributed to break this undesirable trend. In 2001, a new law that mandates to create an information system with a wider scope, not only related to agriculture production but to sustainable rural development; and in 2008, the law through which it's been established that a National Statistical and Geographical System (SNIEG) will be set up and that an entity with technical, managerial and operational autonomy (INEGI) will regulate and coordinate this system.

Regarding the new sustainable rural development law, ever since it had been issued by the Congress, the resources allocated to its programs has been increasing, in order to strengthen institutional capacity to generate agricultural statistics on the Rural Development Districts, upgrading human resources skills through technical assistance and providing the information technology tools that are needed.

SNIEG is integrated by four subsystems, focusing on different issues: governance and public security; geography and environment; demography and society; and economy. Since SNIEG regulations are mandatory at federal, state, and a municipal level, this comprehensive approach provides a strong institutional framework to improve data quality.

1. The Building of the Institutional Framework

Governance is a key concept in the global strategy to improve agricultural statistics. Countries need to build the institutional framework to develop their statistics systems. In the case of Mexico, the diagnosis that was made clearly established the necessity of modifying the way on which the different ministries should interact in order to share a common vision of a National Statistical System (NSS).

The first major definition was that the institution responsible for coordinating NSS should be an autonomous entity, that is to say, an institution capable of promoting mandatory regulations. INEGI was created in 1983 as a decentralized organism of the Treasury Ministry, but in 2006 the Constitution of Mexico was amended by the Congress *a)*. The paragraph *B* of the article 26 expresses:

"The State will have a National System of Statistical and Geographical Information which information will be considered as official. For the Federation, states, Federal District and municipalities, the information contained in the System will be of obligatory use in the terms established by the law.

The responsibility of regulating and coordinating the above mentioned System will be held by an organism with technical autonomy and of management, juridical personality and own patrimony, with the necessary powers to regulate the capture, processing and publication of the generated information and to provide observance “.

According to these, INEGI is constituted as the State Unit *b)* with autonomous character, responsible for regulating and coordinating the National System of Statistical and Geographical Information, as well as the statistical and geographical activities developed by the State Units in order to obtain information of national interest *c)*.

2. National System of Statistical and Geographical Information

The System is defined in the Law as the set of Units organized across Subsystems, coordinated by the Institute and articulated by the National Network of Information, in order to produce and disseminate information of national interest.

The System is composed of:

- The National Advisory Council. - Commissioned to comment on the draft program of the System; propose items, information and indicators that the Governing Board determines to be considered of national interest and propose the creation of new sub-systems and comment on matters submitted to it by the Board of Governors.
- The National Subsystems of Information. - Responsible to produce, integrate and spread demographic and social information and of economic, geographical, environmental, governance, public security and administration of justice.
- The Institute (INEGI). - Public organism with technical and management autonomy, juridical personality and own patrimony, responsible for regulating and coordinating the System.

Figure 1: National System of Statistical and Geographical Information



3. Subsystems of Information

The instruments to operate are the four subsystems that have been created. Each one of them has as main objective to produce, integrate and disseminate Information of National Interest on the topics related to their responsibilities. The subsystems are:

- Subsystem of economic information.
- Subsystem of geographic and environmental information.
- Subsystem of demographic and social information.
- Subsystem of governmental and public security information.

In order to increase effectiveness of its work and to incorporate all the agencies involved in each topic, subsystems may create specialized technical committees *d)*. These committees aim at the following objectives:

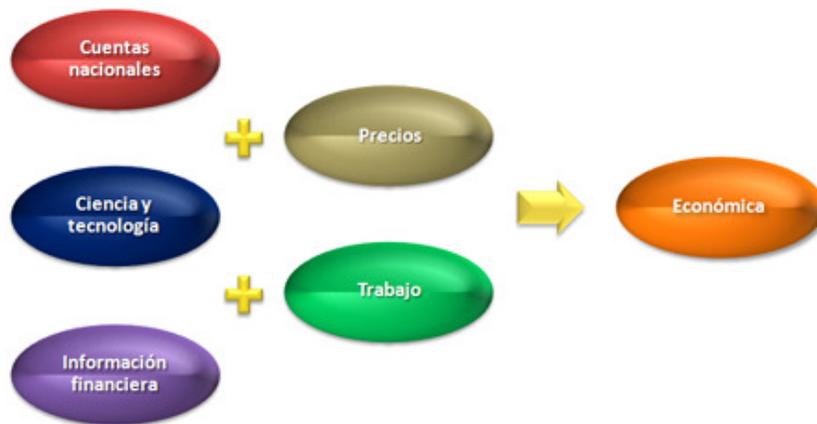
- Propose and evaluate information of national interest.
- Coordinate institutional efforts to generate and integrate national interest information.
- Elaborate and assess the technical standards, guidelines, methodologies, process and projects on related information that are required for the subsystem integration, as well as to promote its knowledge and application
- Select the set of indicators on the topics of its responsibility.

For the purposes of this paper, it's important to describe the subsystem of economic information, given that agricultural information is integrated on this subsystem *e)*.

As it's been described on Figure 1 above, each subsystem has an Executive Committee, led by a Vice-president of INEGI. In the case of the economic information subsystem, besides the Vice-president of INEGI, representatives of the Ministries of Treasury, Economy, and Banco de México (central bank) are included. The Ministry of Agriculture (SAGARPA) is a non-official participant in this Committee, but presides through SIAP the Technical Committee Specialized on Agricultural Economic Information.

This economic information subsystem will be supported by a National Directory of Economic Units and by a survey framework, as information infrastructure. Its mandate is to build a set of key indicators related to national accounts, science and technology, financial activities, labor and prices.

Figure 2: Subject matters on which construct key indicators



It is very important to mention that these indicators will come from the information that is provided by economic and agriculture census, an integrated survey framework and administrative registers.

Figure 3: Sources of information to construct key indicators



As it can be seen, both the construction of key indicators and the sources of information that must be available to successfully undertake this task are properly aligned with FAO guidelines stated on the Global Strategy.

It was mentioned above that the Ministry of Agriculture, and more specifically SIAP, is the head of the Technical Committee Specialized on Agricultural Economic Information (TCS-AEI). This Committee is integrated by the agencies of SAGARPA related to agriculture, livestock, fisheries and aquaculture production (forestry is not part of the faculties of SAGARPA; the Ministry of Environment is in charge of these topics), as well as the Ministries of Treasury, Economy, and the Central Bank.

The main objectives of the Committee are:

- a. Identified national interest economic information.
- b. Generate continuous information about the structure and activities of agricultural sector.
- c. Elaborate and assess the technical standards, guidelines, methodologies, process and projects on economic information of the agricultural sector that are required for the subsystem integration, as well as to promote its knowledge and application.
- d. Select the set of indicators on economic information of the agricultural sector.

The Committee was established in October, 2009. It had created several working groups. The first action was elaborating an inventory of the public institutions that generate agricultural data and the characteristics of this information; then, a data user's needs questioner was applied to the members of the Committee. In recent months, TCS-AEI mainly is focusing on a comprehensive assessment of the system and methods that are used to collect, integrate and disseminate agricultural information.

4. A Comparative Evaluation

Global Strategy's Chapter 7 points out that "the first step is to identify the national set of crop and livestock items...The goal should be to provide annual data for those data items that combined account for over three fourths of the country's value of production and coverage of land, have a production output that can vary significantly from year to year, impact the majority of the households, and have short term affects on land use and the environment".

In the case of Mexico, this task has been done for years. On a monthly basis, SIAP gathers data coming from the 32 States of area planted, area harvested, and yields of the main 50 crops and production of 10 livestock products. This set of crops and products meets the conditions established by FAO, in terms of value of production, coverage of land, output variations from year to year and affects on land use and environment. What is left to do is to complete and measure the set of indicators that is recommended in the strategy.

Chapter 8 indicates that "The strategic plan stands on three pillars, the selection of an agreed upon set of indicators, their integration into the national statistical system, and the methodology to measure them". As it has been mention on this paper, one of the main purposes of SNIEG is to identified, select and construct a key set of indicators, assignment to be done through the specialized technical committees, so it can be said that Mexico has the institutional frame that is needed to accomplish this very important goal.

To have this institutional frame is a necessary but not sufficient condition to be successful; in order to achieve the objective that "data collections across sectors" are done in a coordinate way, using common "sampling frames and surveys", establishing "opportunities to measure the impact of an action in one sector on another", each one of the Mexican government institutions that are part of SNIEG has to adapt the model proposed by SNIEG and adopt common methods to generate information. It's also necessary to take into account that more economic and human resources are needed.

In 2007 INEGI conducted the VIII Agricultural Census, 16 years later than the VII Census that was conducted in 1991. In this year (2010), the population census was conducted. Having these two censuses allows following FAO recommendation in terms of the “use the population census to identify rural and agricultural households” in order to “provide a linkage between population and agricultural data” and build a Master Sample Frame for Agriculture, as it is indicated in Chapter 9 of the Global Strategy.

The same can be said about the Integrated Survey Framework and the Integrated Data Base. Once the linkage between population and agricultural censuses is done, construction of the mentioned framework and data base is easier. But beyond that possibility open by the availability of both censuses in Mexico, additional institutional efforts have to be made to ensure a proper alignment of SNIEG to the Global Strategy.

5. Final Statement

By creating SNIEG, Mexico has taken the first step toward the major goal of the Global Strategy, integrating agriculture into National Statistics System. SNIEG operation means that Mexico government began “at the national level” and dealt “with how to organize a national statistical system around the ministries involved in data collections for the different sectors included in the agriculture domain”, a priority action in terms of governance needs.

Another recommendation of the Global Strategy included in Chapter 12 has been accomplished by Mexico, the one that underlines “Each country should establish a Statistical Council including the Ministry of Agriculture, the National Statistical Office, and other organizations providing statistics or administrative data about the overall scope of agriculture...” even though the second part of the recommendation is still ahead “...to jointly organize and coordinate the development and use of the master sample frame, the integrated survey framework, and data base”

Using a first analytical approach, the key concept to fulfill Global Strategy recommendation is clearly expressed in Chapter 12 of the document “The basic concepts in the vision statements will need to be honored...” To honor those basic concepts, a primary condition is a fully commitment of the Mexican organizations involved in SNIEG with the Global Strategy proposed by FAO. In order to achieve that commitment, two actions seem to be critical in the short term:

- a. A wider and deeper promotion of the Global Strategy objectives by INEGI and SAGARPA within SNIEG committees.
- b. A stronger leadership of FAO in encouragement the implementation of the strategy.

REFERENCES

- a) *The Law on the National Statistical and Geographical Information System was issued in April, 2008.*
- b) *State Unit (Unidades de Estado in Spanish): Administrative agencies that have functions to carry out statistics and geographical activities or have administrative registers that allow them to obtain Information of National Interest.*
- c) *Information of National Interest: information that is essential to know Mexico economic, geographic, social and environmental reality, generated with scientific methodologies.*
- d) *The subsystem of geographic and environmental information has created specialized technical committees on water and land use and climate change. In the case of demographic and social information subsystem, it has specialized technical committees on The Millennium Development Goals, population and demographic dynamics, housing, health and labour.*
- e) *SAGARPA participates in the geographic and environmental information subsystem as well as in the demographic and social information subsystem.*