Implementation of the Recommendation of the OECD Council on

GOOD STATISTICAL PRACTICE

MEXICO

Peer review

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IMPLEMENTATION BY MEXICO OF THE RECOMMENDATION OF THE OECD COUNCIL ON GOOD STATISTICAL PRACTICE:

PEER REVIEW REPORT

FOREWORD

Peer reviews on national statistical systems are an important means within the on-going process to monitor the implementation of the Recommendation of the OECD Council on Good Statistical Practice adopted in November 2015. Such reviews are carried out at a Member's request. Mexico is the first OECD Member to have requested an OECD Peer Review. Otherwise, Members may also opt for self-assessments, including self-assessments backed by documentation and referencing; and monitoring may also draw on peer reviews done in the context of the European Statistical System.

The present peer review of the national statistical system of Mexico was carried out by a team composed of Anil Arora, Chief Statistician of Canada; Markus Schwyn, senior official in the Swiss Federal Statistical Office; Paul Schreyer, OECD Deputy Chief Statistician; and Simon Scott and Julien Dupont, respectively Counsellor and Statistician in the OECD Statistics and Data Directorate. The report was discussed by the Committee on Statistics and Statistical Policy (CSSP) at its meeting in June 2018.

The report that follows comprises an executive summary that presents the findings and recommendations of the review, along with the more detailed information about the Mexican statistical system on which the recommendations were based. In a few places, the report has been updated to reflect additional information gathered after the CSSP meeting in June 2018.

The reviewers made extensive demands for information on those responsible for official statistics in Mexico, primarily in the National Statistical Office (INEGI), the Central Bank of Mexico, and the Ministry of Finance and Public Credit. I would like to express my warm thanks to the President of INEGI, Mr. Julio Santaella, and all the Mexican officials involved in this work for their efficient and professional co-operation throughout the process. I would also like to record my appreciation for the commitment of Mr. Arora and Mr. Schwyn, which brought a vital national statistical office perspective to the review process.

I trust that this review will provide valuable guidance to the Mexican authorities in their continuing efforts to enhance their statistical system, and that it may also suggest useful lessons for other countries.

Martine Durand
OECD Chief Statistician and Director of the OECD Statistics and Data Directorate

EXECUTIVE SUMMARY

1. Mexico is the first OECD member to request a peer review of its statistical system by the OECD's Committee on Statistics and Statistical Policy in accordance with the OECD Council Recommendation on Good Statistical Practice adopted in November 2015.

2. The peer review team consisted of:

- Anil Arora, Chief Statistician of Canada
- Markus Schwyn, Head, Population and Education Division, Swiss Federal Statistical Office
- Paul Schreyer, Deputy Director, OECD Statistics Directorate (STD)
- Simon Scott, Counsellor, STD
- Julien Dupont, Analyst/Statistician, Global Relations, STD

3. This report presents the findings of the review, which are based on interviews conducted during a mission by all team members to Mexico in September 2017, further interviews by STD staff, and detailed responses by the Mexican authorities to the standard questionnaire used to assess compliance with the Recommendation. Funding for the review was provided by Mexico. This report has been checked for factual accuracy with the Mexican authorities, and it is made available to the CSSP with their permission, but the opinions and suggestions it contains are solely the responsibility of the review team, and no endorsement by Mexico is implied.

4. The main purpose of the review was to identify suggestions for Mexico to consider with a view to improving its National Statistical System (NSS). In this connection it is important to note that the Mexican NSS also includes geographical information. While the recommendations in this report are primarily directed at statistical practices, it will be seen that many if not most of them have an institutional character and thus are also relevant for the production and dissemination of geographical information. A secondary objective of the review was to identify good practices in Mexico that may be of interest to other CSSP members. An incidental benefit was to test the Recommendation as a template for such reviews, and in this respect the team found that the twelve sub-recommendations and examples of good practices fully met its needs.

5. For completeness this report should be read in conjunction with Mexico's responses to the self-assessment questionnaire.

Main findings concerning Mexico's NSS

Overall assessment

6. Mexico has a highly developed legal and institutional framework for statistics, with significant checks and balances to ensure the professional independence of its Governing Board and staff, and the integrity of its statistical output. The framework has proven effective in avoiding political interference with Mexico's statistics, and in facilitating a steady increase in the volume and standard of its statistical output. The national statistical office, INEGI, has full technical and substantial budgetary autonomy, good access to administrative data, and tools available to improve overall national co-ordination of statistics. Mechanisms are in place to review and improve statistical quality, especially through international reviews and through process standardisation under the Generic Statistical Business Process Model (GSBPM), and INEGI is also elaborating a formal quality assurance framework. INEGI has good data protection policies and procedures, and

an extensive suite of dissemination tools, with mechanisms for facilitating user feedback. Mexico's unique position – as an OECD member in both North America and Latin America, as well as a member of the Conference of European Statisticians – gives it an unusually broad view of international statistical challenges and opportunities. This is reflected in INEGI's leading role in international statistical fora, its extensive co-operation and technical assistance activities, and its focus on and contributions to innovation.

7. Thus the review team judges that, on the whole, Mexico complies to a high degree with the Recommendation on Good Statistical Practice, and this report's suggestions for improvements are largely at the margin.

8. A number of specific suggestions reflect the general observation that Mexico's NSS, in line with those in other Spanish-speaking countries, is constructed on the basis of a highly prescriptive legal system which is frequently amended in order to address emerging issues. This has the advantage of placing the force of law behind INEGI as it moves forward to further develop the NSS, but it risks becoming cumbersome, or encouraging performance only at the legal minimum. The challenge is to ensure that the right balance and incentives are in place, with legal provisions serving mainly as a backdrop to provide necessary guidelines and protections.

9. Emerging pressure points include the proliferation of Technical Committees and the emphasis on Information on National Interest (INI). The system tends to drive work and decision-making up through the institutional structure, and lead to difficulties in maintaining a high standard of quality and documentation outside INEGI's own domain. Many of the specific suggestions below are thus aimed at ensuring that there are incentives for quality, coherence and data protection across the NSS, for the alignment of INEGI's processes for innovation, quality and methodology, and for the coherence of INEGI's domestic and international interventions.

Specific suggestions for consideration by Mexico

10. Policy-makers may consider reviewing the criteria and procedures for declaring and retaining certain data as "information of national interest" (INI) so as to ensure that the eligible fields are sufficiently broad, and that the information so declared remains relevant, is of high quality, and is available in accordance with open data principles. Other possible actions include strengthening Article 78.II, for example to require INI to be judged as necessary over the medium to long term. (Recommendation 1 and Recommendation 9)

11. INEGI may wish to seek qualified legal advice on the possibilities for introducing new incentives or disincentives to improve the performance of *Unidades del Estado* (UEs)[1] that fail to comply with their duty to supply information. (Recommendation 1)

12. The NSS needs to guard against the excessive proliferation of its structures. A first step may be to schedule a review of the Technical Committees, which have grown substantially, to examine possibilities for streamlining and rationalisation. (Recommendation 1)

13. INEGI should integrate its business planning with more systematic human resources planning so as to manage its evolution over the medium term and to ensure that staff with the right skills are available to speed the development of modern statistical processes. (Recommendation 3)

[1] UEs are the specific units within government agencies that carry out statistical or geographical activities, including by collecting administrative data used in producing INI.

14. While resources for statistical activities have generally been adequate, there remains some potential for friction in joint projects between INEGI and other elements of the NSS. The review team suggests that INEGI (i) step up its efforts to fully implement Article 85 of the Statistical Law so that all UEs receiving federal resources for statistical activities report such funding to it; and (ii) develop a succinct checklist of questions to help it decide when and how to become involved in collaborative projects with other UEs. (Recommendation 3)

15. Given that the average age of INEGI staff is 50, INEGI may have to take more active steps to ensure organisational renewal and the availability of the new skills that will be necessary as statistical systems are modernised, especially through the application of new technologies to administrative data. Possible measures include reviewing the skills demanded of new staff and offering flexible work choices to older staff. (Recommendation 3)

16. In view of the extent and diversity of work currently underway to exploit administrative data, INEGI should consider some form of co-ordination, for example through an overall strategy document or priority list of domains in which greater recourse to administrative data is planned. (Recommendation 5)

17. The present efforts to change laws so as to remove inconsistencies in rights of access to administrative data should also be pursued to their conclusion, taking account of the confidentiality and privacy principles now being elaborated in INEGI's proposed "Technical Standard for Access and Use of Administrative Records". (Recommendation 5)

18. In particular, in view of the importance of securing consolidated figures on general government debt, the review team recommends that INEGI and the Ministry of Finance jointly review the present arrangements to collect the necessary information, and consider whether legal or administrative changes are needed so as to ensure timely and accurate consolidated data. (Recommendation 5)

19. The review team suggests that the calendars for the release of statistical data issued towards the end of each year by INEGI and perhaps the Central Bank should be updated more often, so that release dates are always available several months in advance. Any UEs that release potentially sensitive data and that do not already publish an advance release calendar should also consider doing so. (Recommendation 6)

20. To ensure consistent methodology and consistent presentation of metadata across the NSS, the review recommends strengthening the co-ordination role of INEGI. This may include revisiting INEGI's mandate to become involved in non-INI data. A central classification database outlining the scope, structure, legal basis, etc. for national and international classifications would also contribute to more co-ordinated implementation of statistical classifications in line with international standards. (Recommendation 7)

21. To deepen and extend its work to improve quality, INEGI may wish to consider more systematic involvement of users; closer integration of some areas, such as those responsible for quality management and innovation; stepping up quality improvement efforts across the NSS; and reconsidering its committee architecture, including the possibility of merging the Methodology and Quality Committees. Co-ordination would be improved if appropriate elements of the INEGI framework were also implemented by other UEs. (Recommendation 8 and Recommendation 10)

22. The review team commends INEGI's strong commitment to international statistical co-operation, and to capacity building assistance in countries with less advanced statistical systems. However, as budgetary pressures increase, INEGI would benefit from having a more robust system to gauge the effectiveness of its international work and drive desired outcomes. One measure that might be taken in the short term would be to review recent mission reports to assess the strategic priority of its various commitments to international co-operation. (Recommendation 11)

23. INEGI, and other UEs of the NSS, have paid close attention to the need for innovation in gathering and disseminating statistical and geographical information. As technological possibilities continue to expand, INEGI should keep the legal framework for use of personalised microdata under review so as to ensure citizens' rights are protected. Managing the unknowns in new fields of research will require careful assessment in advance of potential cost-benefit, accepting the risks of failure, and attention to maintaining constructive inter-departmental relationships within research projects. (Recommendation 12)

Some features of the Mexican NSS of potential interest to other CSSP members

24. Mexico's systems for ensuring statistical independence are well-developed and have proved successful. They include long and staggered terms for Governing Board members, a Code of Practice for the NSS as a whole, a Code of Ethics to be signed by statistical staff, a legal obligation for staff to report orders they consider inappropriate or illegal, a suite of advisory bodies, and extensive feedback mechanisms. CSSP Members may find it useful to study the Mexican system for ideas on how to better protect the independence and integrity of the statistical function. (Recommendation 2)

25. Two administrative measures to improve statistical co-ordination in Mexico may be of wider interest. INEGI has developed an Action Plan to reinforce statistical capacities in other UEs of the NSS. This will identify the statistical experts working in those units, consider their seniority, turnover, expertise and other characteristics, and suggest improvements. The Action Plan is being piloted initially within INEGI. INEGI also holds "coffee days" for senior and middle managers to exchange ideas on statistical developments. (Recommendation 3)

26. INEGI has good data protection procedures and is developing new documentation to ensure consistent application of data anonymisation, specify standards for UEs to ensure data privacy and specify data flows so as to facilitate control and audit activities. It has also invited in paid experts on cybersecurity to sensitise staff to data protection issues. (Recommendation 4)

27. Members developing general guidelines for accessing administrative data may be interested to study Mexico's "Standard Process for the Use of Administrative Records", which applies through its NSS and offers a general model for the use of such records, for revising processes, and for training. (Recommendation 5)

28. Other CSSP members, especially those speaking the languages of Latin America, are encouraged to step up their capacity-building in the region, and to consult INEGI when planning or contemplating these, given its wide knowledge and experience. (Recommendation 11)

29. Among innovative Mexican statistical and geographical products that may be of interest to other members are: use of Twitter for mood analysis, use of bank, credit-card and Airbnb records, the Digital Map of Mexico, the Gender Atlas, and the ability to produce block-level maps of damage from natural disasters. More generally, INEGI's institutional set-up that combines responsibilities for statistical and geographical data is particularly helpful for embracing new 'big data' opportunities that arise from combining geospatial and other data sources. Having a dedicated research division, which deals specifically with new methods and develops clearly identified experimental statistics in close collaboration with in-line statistical staff, is also proving a fruitful model. (Recommendation 12)

MAIN REPORT

Origin and nature of this report

30. In November 2015, the OECD Council adopted the Organisation's first legal instrument in the field of Statistics, its Recommendation on Good Statistical Practice. The Recommendation contains twelve sub-recommendations on different aspects of official statistics, and is complemented by an indicative list of good practices.

31. Progress in implementing the Recommendation is to be reported to the Council after three years, i.e. in late 2018. To enable such reporting, each Member must complete a self-assessment questionnaire, and may elect to supplement this by documentation and referencing. In addition, a Member may request a peer review by the Committee on Statistics and Statistical Policy (CSSP) with the help of the Secretariat.

32. On 29 November 2016, Mexico became the first Member to request such a peer review. Following consultation with the CSSP, a review team was then constituted, comprising:

- Anil Arora, Chief Statistician of Canada
- Markus Schwyn, Head, Population and Education Division, Swiss Federal Statistical Office
- Paul Schreyer, Deputy Director, OECD Statistics Directorate (STD)
- Simon Scott, Counsellor, STD
- Julien Dupont, Analyst/Statistician, Global Relations, STD

33. To support the review, the Mexican authorities supplied detailed responses to the self-assessment questionnaire, including extensive background documentation. Responses were provided by the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía – INEGI), the Ministry of Finance and Public Credit (Secretaría de Hacienda y Crédito Público – SHCP), and the Mexican Central Bank (Banco de México – BANXICO).

34. The peer review team also conducted interviews with the President and Governing Board of the Mexican national statistical system (NSS) and a range of INEGI staff at INEGI headquarters in Aguascalientes, Mexico, on 19 and 20 September 2017. Subsequently, the Secretariat had discussions with SHCP, BANXICO and the Ministry of Tourism. This report summarises the peer review team's findings from these meetings and the documentation and other information it collected. It is agreed by all members of the peer review team.

35. The review process has been approached not as an evaluation but primarily as a mutual learning exercise among CSSP members. Its aim has been to help Mexico further improve its statistical system, and to point up useful practices or lessons from Mexico's experience that may be of interest to other Members. A further objective has been to test the Recommendation as a basis for reviewing and improving Members national statistical system.

36. For completeness this report should be read in conjunction with Mexico's responses to the self-assessment questionnaire.

37. The peer review team wishes to thank the President and Governing Board of the NSS, and all participating staff from INEGI, SHCP, BANXICO and the Ministry of Tourism for their generous co-operation during the review process.

Findings

38. The following sections present the findings of the review team against the Recommendation's twelve sub-recommendations, each of which is first spelled out in italics.

Recommendation 1: Organisation

Put in place a clear legal and institutional framework for official statistics which should in particular provide:

i. details as to the organisation of the NSS, the legal status and role of the NSO, as well as the legal status, functions, relationship, rights and responsibilities of other institutions within the NSS;

ii. a clear mandate for institutions of the NSS to collect data for statistical purposes.

39. Mexico established a Directorate-General of Statistics as early as 1882 and a Directorate-General of Geography in 1968. After the passage of a Statistical Law in 1980, a 1983 Presidential Decree merged these two Directorates-General and two other federal bodies concerned with information to create INEGI. In 1985, after a powerful earthquake struck Mexico City, the organisation was moved to a new purpose-built headquarters in the central Mexican town of Aguascalientes.

40. The present legal and institutional framework for official statistics originated in 2006, when Article 26.B was added to the Mexican constitution. This article provides for a National Statistical and Geographical Information System (SNIEG) to be co-ordinated by "an autonomous agency" (in effect, INEGI) with a Governing Board of five members designated by the Mexican President and confirmed by the Senate. At the same time, the Congress was invested with authority to make laws in relation to economic planning and statistical and geographical information of national interest (Article 73.XXIX-D). The 2008 National Statistical and Geographical Information System Law (hereafter, Statistical Law) gave effect to Article 26.B by detailing the System and the functions of INEGI. The Governing Board member designated as President of INEGI presides over Governing Board.

41. The Statistical Law created three National Information Subsystems (NIS): Demographic and Social; Economic; and Geographic and Environmental. The Board has extended the last of these to include Territorial and Urban Order and added a fourth: Government, Public Safety and Justice. Each Subsystem includes UEs from across government and is guided by an Executive Committee chaired by one of the four Governing Board Vice-Presidents. The Executive Committees are served by Technical Committees, again of inter-departmental composition.

42. The System also includes a National Advisory Council (NAC) composed of federal and state representatives and officials, including from the judiciary and the Central Bank, which meets at least annually, chaired by the President of INEGI. INEGI is also advised by an Academic Advisory Council and a User Advisory Council, and has a Quality Assurance Committee composed of the heads of INEGI Directorates and chaired by the President.

43. By law, the purpose of the system is to produce and disseminate Information of National Interest (INI). INEGI is solely responsible for censuses, national accounts and prices data, and its Governing Board determines which other information will be considered INI. Article 6 states that UEs may also produce information other than INI.

44. Article 3 of the Statistical Law provides that the overall purpose of the NSS, comprising the NAC, the NIS and INEGI, is to "provide society and the State with high-quality, relevant, truthful and timely information, in order to contribute to national development".

45. Articles 9 to 13 of the Statistical Law provide for regulation of the activities of the NSS through programming over three time horizons. The Strategic Plan [*Programa Estratégico del Sistema Nacional de Información Estadística y Geográfica (PESNIEG)*] runs for 24 years ahead, and is updated every six years; the current Plan covers 2016-2040. A six-year National Statistical and Geographical Information Programme then defines the activities and projects for each presidential term; the current Programme covers 2013-18. Finally, an Annual Plan [*Programa Anual de Estadística y Geografía*] sets out in detail the activities for each year.

46. The review team is satisfied that the main lines of Mexico's legal and institutional framework for statistics are well-defined, and constitute an appropriate response to the challenge of statistical co-ordination in a large country with statistical operations at federal, state and local level. In particular, a large, centralised, professional statistical institute with full technical and substantial financial autonomy is an appropriate response to the co-ordination challenge. In some details, however, there may be room for improvement.

47. An interesting and unusual feature of the Mexican NSS is the procedure for declaring certain data as INI. The Governing Board may declare as INI data that:

i. fall within a specific list of topic areas
ii. are needed to support the design and evaluation of public policies
iii. are produced regularly and periodically (a minimum requirement in practice is that they have already been produced twice), and
iv. are based on a sound methodology.

48. The Governing Board has now exercised its power to declare data as INI more than 30 times, mostly for INEGI data. Data series so declared have a privileged position in the Mexican statistical system, since Article 6 of the Statistical Law provides that they "shall be official and of mandatory use" at all three levels of government in Mexico. While the detailed approval process for INI helps to ensure that these data series are of good quality, the absence of procedural rules and quality criteria for non-INI data risks resulting in a two-tier or fragmented system with widening gaps of quality.

49. One issue raised during the review team's visit was the limited scope of the list of topics that could be declared as INI. Tourism, for example, is not on this list, and although some information on the tourism sector is currently considered INI, such as the Tourism Satellite Account, the Ministry of Tourism wishes that its National System of Statistical Information of the Tourism Sector be officially recognized. The Ministry therefore proposes to modify its own legislation to support the strengthening of its statistical and technological capacity.

50. Procedures for extending the fields in which INI may be declared are set out in the Rules for Determining Information of National Interest. They include making a proposal to the Governing Board (paragraph 21 of the Rules), and obtaining the unanimous consent of the National Consultative Committee (ibid, paragraph 25).

51. A complication in this regard is that although Article 78 of the Statistical Law delimits the eligible fields of INI, it then adds that notwithstanding this delimitation, information may also be considered INI that "is necessary to prevent, and, as the case may be, deal with emergencies and catastrophes arising from natural disasters" or that "must be produced by virtue of a commitment established in any international treaty". The former provision in particular might offer possibilities to argue that data in many fields – including tourism – could be declared as INI without meeting the stated criteria, since they could be considered necessary to prepare for natural disasters. That natural disasters have society-wide ramifications was brought home to the review team by the tragic disruption to Mexican society from earthquakes which struck shortly before, during and after its mission to the country.

52. If the present grounds for declaring data as INI leave room for interpretation, so does the provision of Article 6 of the Law that requires the use of INI for official purposes. The vagueness arises because, unless a particular data series has been identified by law as being the one to use for a given official purpose, it must remain a matter for judgement whether any particular INI data series is mandatory for a given purpose.

53. This and other complexities in the present system suggest that the Mexican authorities may need to consider possible changes to the INI system. One option would be to delete the subject field limitations in Article 78.I and adjust or remove the exceptions to it relating to natural disasters and international treaties. If this were implemented, there might also be scope for some compensatory tightening of the INI criteria in other directions. For example, Article 78 could state explicitly that, to be declared as INI, data would need to possess the characteristics mentioned in Article 3, rather than relying, as at present, on Article 53 which states this as INEGI's "priority objective". Article 78.II could also be strengthened to require INI to be judged as likely to continue to be needed for formulating or evaluating public policies and programmes over the medium to long term. It might in addition require INI to be made available in accordance with open data principles, as discussed under Recommendation 9 below.

54. Another issue that should be considered is the possible need for further tools to deal with cases in which UEs persistently fail to provide necessary data. Article 55.II of the Statistical Law charges INEGI with responsibility to regulate and co-ordinate the activities of UEs, and Article 55.IV empowers it to request data from them. In practice, however, the Institute lacks budgetary and administrative control over these UEs, many of which are at state or municipal level. And while the Law contains extensive provisions (Articles 103 to 126) covering administrative faults and sanctions, no sanctions appear to apply in the case of UEs that fail to collect or deliver information requested under Article 55.

55. At the federal level, the machinery of government itself may allow inter-departmental problems with statistical collection to be resolved though progressive escalation of the issue up to and if necessary including the political level. At state and municipal level, however, levers for securing compliance may be lacking. Article 77.II would appear to permit the Governing Board to withdraw the INI classification from data, but this measure may not be especially effective in regard to UEs that only produce data for other bodies, and which they do not need for their own operations. Budgetary or other federal sanctions may raise practical problems or give rise to broader disputes. Moreover, any provision for sanctions to be applied to UEs would also require specification of avenues of appeal, as are already set out in case of sanctions imposed on system respondents or statistical staff. In the light of these constraints, the review team recommends that INEGI seek qualified legal advice on what new incentives or

disincentives might be introduced to improve the performance of UEs that fail to comply with their duty to supply information.

56. A third and more general issue is the risk that the ***NSS may become too heavy***. The 2008 Statistical Law, which is detailed and stipulative, is understandably oriented towards building up the NSS. One example is Article 17 which empowers the Governing Board to create new statistical sub-systems, a power which has been exercised to create the new sub-system of Government, Public Safety and Justice, as well as to enlarge the Geographical and Environmental Subsystem. Another example already mentioned is the increase in INI data series. In addition, the number of Technical Committees under the Executive Committees has risen to 40.

57. The review team does not question any of these decisions, which it trusts were taken in the interests of building up sound and relevant data series across the governmental system. Nevertheless, it notes that the logic of and incentives in the system conduce towards its further proliferation. This will need to be addressed in the medium term, and perhaps earlier if budgets are tightened.

58. A first step might be to schedule a review of the Technical Committees, which have grown substantially, to examine possibilities for streamlining and rationalisation.

59. INEGI might also consider how to control the proliferation of INI data. While there is evidence that discipline is being applied in the process of developing data as INI (e.g. acceptance of time-use surveys as INI was recently postponed until completion of the 2019 round so that at least two comparable rounds would be available for consideration), there is currently little scope to review data series already declared as INI, or adopted as indicators, or otherwise distinguished or approved, to ensure that they are still relevant to user needs, of high quality, and justify the cost of their collection.

60. One possible avenue for controlling the growth of INI and at the same time limit further administrative complexity would be to consider changes to the Quality Assurance Committee and Methodology Committee discussed under Recommendation 8 below. If these bodies were merged into a Quality Review Committee, the Governing Board would have a single, clear source of advice possible changes to the existing shape, scope or methods of statistical production activities. It would then need to decide whether to accept the recommendations of such a committee, which would have been subject to previous comment or review by the responsible Executive and eventually Technical Committee(s).

Recommendation 2: Independence

Ensure professional independence of National Statistical Authorities. To this end, Adherents should ensure that the National Statistical Authorities:

i. are professionally independent from other policy, regulatory or administrative departments and bodies, as well as from private sector operators, considering that professional independence of the producers of official statistics is essential for the production and the dissemination of objective statistics;
ii. have the exclusive authority, as part of their professional independence, to decide on statistical methods and dissemination;
iii. are protected, through the inclusion of explicit provisions in statistics legislation, from political and other interference in developing, compiling and disseminating official statistics.

61. Article 26.B of the Constitution allocates normative and co-ordinating responsibilities for the SNIEG to "an organism" (in practice, and by the 2008 Law, INEGI) which must have technical and managerial autonomy, juridical personality and its own resources. The article also guarantees the powers of this organism to collect, process and publish information, and oversee its use.

62. The Article further provides that the SNIEG will observe the principles of access to information, transparency, objectivity and independence. It specifies that the members of the Governing Board will have no other employments, will only be subject to removal for serious reasons, and must act in accordance with the Constitution's provisions for the good conduct of public servants, which include the obligation to perform their duties in a "legal, honest, loyal, impartial and efficient way".

63. The Statistical Law provides detailed information on the procedures for appointment and removal of the members of the Governing Board. The terms of office of members of the Governing Board are long – 8 years for each member (renewable once) and 6 for the office of President – and are staggered in time so as to limit the opportunities for a single administration to "stack" the Board with political appointees. Appointments, which are made by the President of Mexico, must be approved by the Senate or, if it is in recess, the Permanent Commission of the Congress.

64. The Law further provides that members of the Governing Board will not use information for personal or third-party benefit, or participate in political, partisan or religious acts as INEGI representatives.

65. A Code of Ethics regulates the activities of staff. INEGI staff must sign it, and its observance is promoted throughout the SNIEG. The Code states that staff must observe "Independence: Acting free of any sort of pressure from interest groups in the production and dissemination of information" and "Objectivity: Ensure that statistical information reflects reality as faithfully as possible".

66. A SNIEG Code of Practice establishes the independence of UEs of the SNIEG in developing, producing and disseminating statistics. This operational autonomy, however, is to be viewed within the framework of the Statistical Law, in particular concerning the role of the Governing Board in determining whether data meet the criteria to be considered as INI (Articles 77 and 78), and INEGI's responsibility to consult on INI methodologies before they are implemented (Article 88).

67. Article 8.VII of the Federal Law on the Administrative Responsibilities of Public Servants lays upon them an obligation to report in writing to the head of the agency in which they work well-founded doubts about the legal basis and rectitude of any order issued to them, and provides that the head will respond to both the person reporting and the person who issued the order.

68. There are also formal consultation mechanisms on statistics, including the National Advisory Committee, the Users' Advisory Committee and the Academic Advisory Committee, as well as active feedback channels through website enquiries and Facebook and Twitter accounts. The plural and open nature of these bodies mitigates the risk that they could place undue pressure on professional decision-making by the national statistical authorities, and in practice they are more likely to discourage interference with the independence of the statistical function than to exercise sway over its decisions.

69. Overall, the review team finds that the independence of the Mexican statistical authorities is strongly protected by an extensive suite of legal and institutional provisions. This machinery has been effective in practice, with Governing Board members reporting negligible levels of interference with professional decision-making on the development, compilation and publication of data. BANXICO and SHCP also reported that no political pressure had been exerted on them to alter or delay the release of statistics compiled by them.

70. Other countries whose statistics have suffered from political interference could usefully study the Mexican system for measures which could better protect them against such interference in future.

Recommendation 3: Resources

Ensure adequacy of human financial and technical resources available to the National Statistical Authorities for the production and dissemination of official statistics. To this end, Adherents should ensure that the resources are:

i. sufficient to allow National Statistical Authorities to meet their commitment to quality, and to meet professional standards thereby fulfilling their role as providers of reliable, relevant and accessible data for national and international use;

ii. adequate to produce a minimum core set of data, to be defined nationally or internationally, to monitor the economy, society and the environment.

a) Finance

71. Under Article 83 of the Statistical Law, INEGI has a large measure of autonomy in managing its budget and allocating its funds within the overall limits prescribed by Congress. It has both a budget for regular activities and a budget for censuses. It also receives some funds from other UEs to undertake statistical projects.

72. Its regular budget increased in real terms by ~16% between 2012 and 2016 to reach 4.87 billion pesos (about $US250 million).

73. Its budget for censuses totalled 8 billion pesos over the two years 2009-10 (an Economic Census was carried out in 2009 and a Population and Housing Census in 2010). However, the total budget for censuses totalled only 6.9 billion pesos over the six subsequent years, 2011-16, during which the Economic Census was conducted in 2014, an inter-census survey for population and housing was carried out in 2015 and two agricultural surveys were fielded in 2012 and 2014.

74. INEGI has explained that the ***agricultural surveys*** were carried out because funding was insufficient to conduct an agricultural census. These were limited to the main agricultural products and did not therefore give a complete picture of Mexico's agricultural production.

75. While the 2012 and 2014 agricultural surveys did not provide the level of detailed information that a census would have offered, they did give a broadly satisfactory picture, and a full census would have been much more expensive, given the need to extract detailed information from every producer in the country. The cost-benefit of the additional information would have been questionable given that agriculture now accounts for only 3.5% of Mexico's gross domestic product, and Article 25 of the Statistical Law allows INEGI to derive the necessary information either from censuses "or alternative schemes that may be adopted in the future to replace them in whole or in part".

76. The strong position of INEGI in the governmental system, and its size and expertise, means that it is frequently consulted by other departments, and engages in a range of ***jointly-funded collaborative activities*** with them. This sometimes leads to frictions as the line departments involved may wish to know the results of surveys in advance, so as to prepare themselves politically, whereas releasing information selectively in advance can undermine at least the perception of statistical independence and rigour. There may also be problems with other receiving departments' financial contributions, as their own budgets may be stretched by other more politically salient activities, leading to pressures for INEGI to take over financial responsibility. The review team suggests that efforts should be stepped up to fully implement Article 85 of the Statistical Law, which requires all UEs receiving federal resources for statistical activities to report such funding to INEGI, and flag any relevant statistical implications of these activities, excluding BANXICO because of its budgetary and administrative autonomy.

77. Given the issues that have arisen with jointly funded activities, it may also be advisable for INEGI to develop a succinct checklist of questions to help it decide when and how to become involved in collaborative projects with other departments, or other bodies with statistical interests. Such a checklist could cover issues such as cost-benefit, degree of control over the planned product, relevance of the output to INEGI's core mandate, and potential institutional or budgetary implications. The Generic Statistical Business Process Model (GSBPM) and the OECD Recommendation on Good Statistical Practice on which this review is based may provide guidance on specific questions to be answered in order to ensure value for money and safeguard statistical rigour and integrity in such collaborations.

b) Staffing

78. In recent years, INEGI's total staff has averaged 22 000, with 13 000 being permanent. In 2016 there were 6 000 temporary field staff, but this can swell to 200 000 to collect data in a census.

79. The recent recourse to agricultural surveys suggests possibilities for streamlining collection activities. Staff numbers are already being reduced by using tablets rather than forms to collect information, and as in other countries the rapid proliferation of administrative data is opening up possibilities to compile statistics from existing records rather than gather information *de novo.*

80. The average age of INEGI permanent staff is 50, their average seniority there is 20 years, and 58% of them have a college education. A major challenge for the next few years will therefore be the successful ***renewal of its skills base***. Adopting new statistical methods will require staff with the drive and technical capacities to implement them. While INEGI has already been offering voluntary retirement packages, it may also wish to consider offering other flexible work choices to older staff to ensure that their expertise is passed on, while making sufficient room for widening the organisation's skills base to cope with future challenges. More broadly, the review team suggests that INEGI develop systematic human resources planning, integrated with its business planning, to manage the medium-term process and, importantly, to ensure that staff with the right skills are available to carry forward rapidly the development of modern statistical processes.

81. Regarding the supply side of staffing issues, INEGI respondents found this was not a major problem, although there were gaps in staffing some new initiatives, e.g. gender statistics. They explained that vacancies were filled by public advertisement, with applicants' technical skills being assessed through exams.

82. To fill some specific technical needs, INEGI has engaged with universities to provide the necessary services. The Ministry of Finance reported a recent liberalisation of its staffing policy to allow recruitment of experts in information technology, and data and information management. BANXICO reported plenty of applications for its vacancies, but noted that, given its interest in increasing the human capital of its staff, it had encountered problems in finding personnel that combined the necessary technical knowledge and skills; sufficient competence in English; and willingness, whenever required, to work long hours and undertake travel.

83. Two INEGI initiatives on staffing may be of interest to other CSSP members. The first is its ***Action Plan to reinforce UEs' statistical capacities***. This will identify the statistical experts working in other parts of the NSS, consider their seniority, turnover, expertise and other characteristics, and suggest improvement plans, possibly including exchanges with INEGI as well as training etc. The Action Plan is first being piloted within INEGI in elements of the economic and geographical subsystems.

84. The second initiative is a "***coffee day***" for senior and middle managers, an idea brought from a visit to Google. It is an informal communication and information-sharing opportunity for senior staff to reflect on outcomes and results, and exchange ideas for change.

Recommendation 4: Confidentiality

Protect the privacy of data providers (including individuals, households, enterprises, administrations, and all levels of government) and guarantee by law the confidentiality of the individual information provided and its use for statistical purposes only.

85. Article 38 of the Statistical Law provides that respondents' data provided to all UEs are confidential, may only be used for statistical purposes, and should not be disseminated in nominative form. Confidentiality also extends to contracts, payroll and other

information generated through INEGI's operations. BANXICO collects statistical data under the terms of Article 62, section I, of its Law; confidentiality, when it applies, is assured by several internal BANXICO regulations.

86. INEGI has developed a suite of policies, guidelines, and IT service regulations to enforce these provisions, together with corresponding institutional, hardware and software measures.

87. Staff are informed of the arrangements, including through the Code of Ethics and Code of Practice, and must sign a form on "Institutional Principles of Information Security". Penalties for infringements of confidentiality are established in the law in multiples of the minimum daily wage in Mexico City, and reach as high as 30 000 days' of this pay (recently equivalent to 2.6 million pesos or about $US 133 000).

88. A high-security ***Microdata laboratory*** is available in Mexico City and users' output is reviewed to ensure that it does not violate confidentially provisions, before they can retrieve results. INEGI is considering opening a second Microdata laboratory in Aguascalientes as there is significant interest in data which can only be consulted under such conditions. Some users of the data are in the lab for months working on them.

89. Systems and practices must also be adapted, reviewed and tightened where necessary, as was done, for example, when responsibility for price indices was moved from BANXICO to INEGI and an agreement was reached guaranteeing the security of microdata. Other measures taken to reinforce data security include a Congressional audit, which recommended some improvements, and inviting in outside experts on cybersecurity to raise staff awareness of the issues.

90. Overall, the review team finds that the ***legal and institutional basis for protecting confidentiality*** is extensive and generally sound, but notes that it must be kept under regular review given the speed with which technological frontiers are advancing and more and more personal and confidential data is becoming accessible, including from emerging administrative and novel data sources. It therefore supports INEGI's plan to develop documentation to (a) ensure consistent application of data anonymisation and standards and procedures to protect the confidentiality of data, (b) fully specify standards and procedures for UEs to ensure the privacy of data providers, and (c) set out data flow schemes so as to facilitate control and audit activities in relation to data protection.

Recommendation 5: Access to administrative data

Ensure the right to access administrative sources to produce official statistics. To this end, Adherents should ensure that:

- *i. National Statistical Authorities have the right to access administrative data for the regular production of official statistics and to use them in the interest of ensuring quality of official statistics, raising the analytical value of official statistics, reducing burden on survey respondents and reducing the cost of statistical programmes;*
- *ii. National Statistical Authorities co-operate with owners of administrative records as regards their statistical quality and have authority to influence their design to ensure they are fit for statistical purposes.*

91. Article 55.IV of the Statistical Law states as a "function" of INEGI to "request information obtained within the scope of their competence and which is necessary for the System".

92. Article 33.V obliges government agencies carrying out activities related to INI to "provide the Institute, directly or through its co-ordinator, with the information requested by it".

93. The ***legal basis for INEGI to exploit administrative records of UEs*** for statistical purposes is therefore clear in the case of INI, with one exception: some agencies have their own laws forbidding access to their data by other bodies. This involves tax and banking records. Action is currently under way to change these laws so as to remove the present inconsistencies. The review team suggests that this should be done in accordance with the confidentiality and privacy principles now being elaborated in INEGI's proposed "Technical Standard for Access and Use of Administrative Records", which will also establish quality standards for use of administrative data.

94. The ***legal basis for use of administrative records by agencies other than INEGI*** is less clear. For example, the Ministry of Finance needs access to State and municipal records to compile general government income and expenditure accounts and calculate general government debt, but it lacks the legal powers that INEGI would have to require submission of this information. In practice, INEGI has been collecting income and expenditure data from the States and municipalities, but these arrive with a year's delay, and are missing some elements necessary for producing consolidated accounts (i.e. accounts which cancel out transactions or debts between entities at the same or – for general government accounts – another level of government).

95. Given the importance of consolidated figures, especially on general government debt, the review team recommends that INEGI and the Ministry of Finance jointly review the present arrangements to collect the necessary information, and consider what further legal and administrative dispositions may be necessary to compile timely and accurate consolidated data.

96. The Central Bank is using customs data to compile the balance of payments, Ministry of Finance data on government bonds and bank assets and liabilities, and private bond and stock market data. While data on official transactions are good, there are gaps in private data which are difficult to fill from administrative sources. The Bank is therefore making efforts to improve the measurement of assets of the non-financial private sector, through increasing the coverage of both the survey on foreign assets and international trade in services, and information collected from other institutions. The Bank lacks the legal power to access credit card records, which would be useful as indicators of foreign purchases.

97. A "Standard Process for the Use of Administrative Records" is part of SNIEG technical documentation. It proposes a general model for the use of administrative records, for revising processes, and for training.

98. In practice, INEGI has established ***agreements with various UEs to produce statistics from administrative records***. These include the tax authorities, the Ministry of Finance, the Central Bank, State Superior Courts, the civil and cadastral registries, and the authorities concerned with of women's affairs, culture, and the environment.

99. INEGI is working with a number of agencies to identify and improve administrative records for statistical purposes. Activities include working groups to identify possible new sources of administrative data for statistics, training in statistical and analytical methods, and application of an Administrative Records Quality Assessment Tool.

100. Progress is being made in several areas. One example is linking information on customs forms with returns on the annual surveys of manufactures to identify the characteristics of firms engaged in international trade. Another is the use of monthly electricity records as forward indicators of manufacturing output. Work is also underway to link information in health, education, welfare and other databases through unique keys.

101. In view of the extent and diversity of work currently underway to exploit administrative data, it is welcomed that the SNIEG reports in a co-ordinated way on these activities, both through the 2013-18 Programme and in detail on individual activities each year in the Annual Plan. In addition, an overall strategy document or priority list of domains in which greater recourse to administrative data is planned would be desirable.

102. A significant limitation on the use of administrative data in Mexico arises from the ***size of the informal economy***. More than half of employment and about a quarter of national production is informal, and most Mexicans do not pay income tax. This means that surveys remain essential to capture population-wide data about income, employment and related aspects of welfare at individual level. A similar limitation applies in the area of crime statistics, where, since many crimes go unreported, surveys remain necessary to gain an adequate picture.

Recommendation 6: Impartiality, objectivity, transparency

Ensure the impartiality, objectivity and transparency of official statistics, through the development, production and dissemination by the National Statistical Authorities of statistics respecting scientific independence put in place in an objective, professional and transparent manner in which all users are treated equitably. Equitable treatment implies in particular equal access to data by all users

103. INEGI states that its press releases present only statistical results, without political or partisan bias, and that spokesmen avoid making commentary or forecasts. Supporting data are released and enquiries answered. Press coverage is monitored and where errors are spotted, "clarifications are made directly to the author".

104. INEGI, BANXICO, and SHCP all publish ***annual calendars of dates for statistical releases***, which preclude delaying the publication of sensitive data for political advantage. Each institution follows its own format and internal approval procedures. SHCP publishes an annual calendar that is updated every month for the next 12 months, whereas BANXICO's calendar is issued every year after it is approved by the Central Bank´s Governing Board. INEGI´s calendar is issued once a year in November or December, after approval by the Governing Board in accordance with Article 77.XI of the Statistical Law. This means that releases in January and February are only flagged a few weeks ahead. The review team suggests that INEGI and BANXICO might consider updating their calendars more often, perhaps even monthly as done by SHCP, so that release dates are always available well in advance. Any UEs that release data that could be politically sensitive and that do not already publish a release calendar in advance should also consider doing so.

105. The Heads of the Central Bank and the Ministries of Finance, Economy and Labour have access for analysis purposes to economic statistics produced by INEGI up to 12 hours before release time. This has not led to significant last-minute pressure to delay or alter data releases and it is also an internationally accepted practice; over the recent years, however, several OECD Members have refrained from any provision of statistics in advance. INEGI makes data releases according to the advance release calendar, with a standard release time

of 8 a.m. If press conferences are held, these are usually at 11 a.m., with the data already available at 8 a.m., and the commentary published at the end of the conference.

106. The Statistical Law requires INEGI to publish plans, methods, and an annual accountability report. New methodologies are subject to public consultation. INEGI states that as a result, several environmental questions were added to the 2014 Economic Census questionnaire. Consultations are underway on the design of the 2020 census.

107. Presentations are standardized through guidelines on "Presentation of Statistical Data in Tables and Graphs" and on publications, maps, formats and questionnaires.

Recommendation 7: Methodologies

Employ sound methodology and commit to professional standards used in the production of official statistics. To this end, Adherents should:

i. apply appropriate statistical procedures and methods, including a stated revisions policy;
ii. strive to adhere to international norms and standards, such as methodological manuals developed by the United Nations Statistical Commission or by the OECD, and international classifications in the statistics collected by the OECD.

108. Mexico's Statistical Law has detailed and rather complex provisions regarding statistical methodologies to be used in producing INI, but does not specify requirements and controls applying to other data.

109. Article 3 states that the guiding principles of the SNIEG are those of accessibility, transparency, objectivity, and professional independence. However, since the Law defines the SNIEG in terms of producing and disseminating INI, the application of the principles is effectively limited to INI. Article 53 makes INEGI responsible for ensuring that INI meets these principles, and Article 54 obliges it to also ensure the conceptual adequacy and comparability of INI. Article 78 stipulates that INI (90% of which is produced by INEGI) must be "elaborated based on a sound methodology".

110. Practical measures to ensure that INI meet these requirements are also set out in detail. Article 33 establishes that UEs must propose to the relevant Executive Committee the methodologies they intend to use for gathering INI, and Article 30 then empowers the Committees to propose to the Governing Board technical norms and methodologies for INI. Article 88 obliges INEGI to define methodologies and disseminate these for public comment, and obliges its Governing Board to issue general principles for publication of methodologies. Article 89 provides for INEGI to institute methodological reviews of INI by international organisations, which under Article 30.VI must be carried out at least every eight years.

111. The review team briefly examined the implementation in practice of the Law's provisions on methodology, focusing on sociodemographic and economic statistics.

112. For ***sociodemographic statistics***, the main statistical operations are conducted according to the procedures defined by the Technical Standard for Statistical Production (NTGEB):

i. The methodological framework includes compliance with international recommendations, and the use of international definitions and standards. For example, the Labour Force Survey (ENOE) complies with International Labour

Organisation (ILO) definitions agreed by the 13th International Conference of Labour Statisticians;

ii. The probabilistic sampling is based on the National Geostatistical Framework (MGN), a system designed by INEGI to geo-reference census and survey data;

iii. Data collection is continuously monitored and data collection instruments are tested in order to verify their feasibility and functionality;

iv. Data collection includes procedures for monitoring quality;

v. Data processing includes automated procedures along with manual processes.

113. INEGI also regularly reviews the sociodemographic statistical infrastructure and updates it for changes in international recommendations as required. For example, the Population and Housing Census questionnaire is reviewed at least every five years, and a major revision of the Household Income and Expenditure Survey (ENIGH) is planned in 2020.

114. For ***economic statistics***, including on national accounts, prices, international trade in goods and services, and the balance of payments (BOP), the review team also observed a sound statistical infrastructure and procedures in place. Mexico's economic statistics draw on a solid statistical business register regularly maintained by INEGI with information sourced from administrative records and traditional surveys. Procedures defined by the NTGEB also apply to the economic census and inter-census surveys, for which subject-specific tests and pilots are regularly carried out. In addition, specific guidelines are in place on data collection, data production (e.g. an updating cycle for the production of economic statistics), and data dissemination (e.g. guidelines for modifying published data).

115. INEGI co-ordinates use of international standards for economic statistics, for example the International Standard Industrial Classification (ISIC Rev.3). Co-ordination is particularly important when significant methodological changes affect multiple series produced by different UEs. For example, implementing the 2008 System of National Accounts (SNA 2008) also affects BOP statistics produced by the Central Bank and general government accounts produced by the Ministry of Finance, which need to comply with IMF Government Finance Statistics Manual 2014 (GFSM 2014) to be consistent with SNA 2008. INEGI participates in inter-institutional working groups to update classifications across the SNIEG and continuously interacts with other producers of official statistics, notably through the Executive Committees.

116. The fourth objective of the 2016-2040 Strategic Plan is to produce accurate, reliable, consistent and comparable data. This will require long-term strengthening of the implementation of relevant technical standards across the SNIEG. INEGI is following up by ensuring that the information infrastructure defined by the Statistical Law is used as a common basis for statistical production, by developing methodologies to link different statistical and geographical projects, and by strengthening training activities across the SNIEG.

117. This review concludes that the Mexican NSS broadly complies with the Recommendation 7. Appropriate measures and procedures are in place to ensure that internationally recognised statistical methods are used in producing and disseminating INI. However, ensuring a consistent implementation of statistical international norms and standards by all NSS entities appears challenging, and it may be necessary to strengthen INEGI's co-ordination role to ensure a systematic use of sound methodologies.

118. For example, Mexican statistical legislation does not oblige UEs producing ***non-INI data*** to use sound statistical methodologies. It may nevertheless be advisable for INEGI to be empowered to promote the use of standards and methodologies consistent with international guidelines, for example through:

i. discussing technical standards and subjecting them to approval processes;

ii. submitting methodologies and regulations to public consultation;

iii. making methodologies publicly available on a systematic basis.

119. Implementing and testing new standards (through parallel operations or control exercises) may require additional human and financial resources, and the legal basis for INEGI to intervene in the case of non-INI data might also need to be reviewed.

120. This review also noticed some heterogeneity in the procedures in place to deal with the quality of statistical products and outputs, e.g. in the ***dimensions and formats of metadata*** available across statistical domains. These would benefit from developing a standardised production format and dissemination process for metadata across the SNIEG, which could be part of the implementation of the Generic Statistical Business Process Model (GSBPM; cf. Recommendation 8). More generally, further standardisation of procedures related to quality between the various statistical operations, notably between INEGI and other producers of official statistics, would improve methodologies and processes. A central classification database including information on scope, structure, legal basis, implementation date, etc. for the national and international classifications would further contribute to more co-ordinated implementation of statistical classifications in line with international standards.

121. In the near future, INEGI envisages setting up a methodology committee to organise and review the methodologies and technical standards used in across the SNIEG. This may overlap to some extent with the existing Quality Assurance Committee, and this issue is discussed further under Recommendation 8.

Recommendation 8: Quality

Commit to the quality of statistical outputs and processes, in particular to key quality dimensions as defined in national and international quality assessment frameworks, for instance in the Quality Framework and Guidelines for OECD Statistical Activities: timeliness and punctuality (statistics are released in a timely and punctual manner); relevance (statistics meet the needs of users); accuracy (statistics accurately and reliably portray reality); credibility (confidence is placed by users in statistical products); coherence and comparability (statistics are consistent internally, over time and in space and it is possible to combine and make joint use of related data from different sources); and interpretability and accessibility (see Recommendation 9).

122. As already mentioned, Article 3 of the Statistical Law stipulates that "the National Statistical and Geographical Information System has the purpose of providing society and the State with quality, relevant, accurate, reliable and timely information, in order to contribute to national development. The guiding principles of the System shall be those of accessibility, transparency, objectivity, and independence."

123. INEGI is responsible for coordinating the policy on statistical quality throughout the SNIEG. The Central Bank and the Ministry of Finance, which are part of the Economic Statistics subsystem, also put great emphasis on ensuring the quality of the statistics they produce and disseminate.

124. Until recently, the Executive Committees and Technical Committees of each of the four subsystems designed their own practices on quality and metadata management. INEGI involvement in all the subsystems helped share good practices, but the processes were not standardised. As a result, this review observed differences in content between economic statistics and labour and demographic statistics, and in processes to ensure consistent time series.

125. The Governing Board has been aware for some time of the need to standardise quality management procedures across the SNIEG, and has taken steps to promote this. It approved the ***Quality Assurance Norm*** in 2014 and the ***Quality Assurance Policy*** in 2015, which includes 19 principles related to products, processes and the institutional environment – all designed to ensure a coordinated management of statistical processes and outputs, and match quality to user needs. In 2015, it established the ***Quality Assurance Committee***, chaired by the President and comprising the INEGI Directors-General, to coordinate implementation of the Policy. This Committee approves annual ***Quality Assurance Plans***, based on self-assessments conducted by the various INEGI units responsible for the collection, production and dissemination of statistics, and external reviews (for example, the IMF Report on the Observance of Standards and Codes). The Plans set out priorities and strategies to improve the quality of processes and outputs, and the Committee also co-ordinates associated technical assistance and training activities. It has also established working groups to identify specific accuracy and reliability indicators and parameters for assessing timeliness, analyse the impact of methodology changes on comparability, and develop guidelines for identifying user needs. The INEGI Risks Committee is responsible for risk management analysis.

126. The SNIEG Code of Practice, mentioned already under Recommendations 2 and 4, was also adopted in 2014. It includes 15 principles and 63 related good practices, and is largely consistent with the regional code adopted by the Statistical Conference of the Americas of the Economic Commission for Latin America and the Caribbean (ECLAC).

127. In 2015, Mexico adopted the UN Quality Assurance Framework, and in 2016, INEGI implemented the first quality assurance programme and initiated work to adapt its production process to Generic Statistical Business Process Model (GSBPM) concepts. This will standardise statistical processes and outputs and improve their quality through methodological enhancements to improve consistency and comparability, data validation processes, and the timeliness of source data, especially for producing national accounts and price statistics. INEGI is now defining quality indicators for accuracy (e.g. response rates) and reliability (e.g., sampling errors), and formulating a communication strategy for the implementation of GSBPM. It is developing appropriate training programmes on the main quality principles, and aims at systematic evaluations based on tools similar to those used in the European Statistical System.

128. INEGI also recognises the need to develop and promote a process- and evidence-based quality assurance culture within the SNIEG, to consolidate senior management commitment to quality management, and to strengthen relationships with academics and international organisations.

129. On the whole, INEGI is well aware of the main challenges as regards the management of quality of official statistics. Initiatives are in place to strengthen the quality of statistical outputs and processes and to promote a culture of quality throughout the SNIEG. Implementing the GSBPM business model will help to produce and disseminate metadata in a uniform and standardised format.

130. To deepen and extend its work to improve quality, INEGI may wish to consider the following suggestions as it pursues its implementation of the GSBPM:

i. ***more systematic involvement of users***, for example through regular satisfaction surveys, to ensure that statistics remain relevant to their needs, provide input to INEGI decisions about business planning, and identify ways to improve the efficiency of data collection, production and dissemination.

ii. ***integrate business resources and business planning*** and identify areas where merging skills could generate efficiency gains, e.g. further develop interactions between staff responsible for quality management and innovation.

iii. pursue and ***intensify its efforts to improve statistical quality across the SNIEG***, through training, exchanges, and involvement of other UEs in quality improvement initiatives

iv. consider reducing potential duplication or overlap generated by the number of Committees involved in the design and implementation of the quality management system. For example, the ***Methodology and Quality Committees*** might be merged into a Quality Review Committee that would review existing series and recommend changes to scope or methods, including whether to abolish, streamline or merge statistical production activities. The Governing Board would need to decide whether to accept the recommendations of such a committee, and these recommendations should be subject to previous comment or review by the responsible Executive and eventually Technical Committee. Legislative changes may be needed to accommodate the possibility of removing the INI classification from a data series, or discontinuing an INI data series, in case the Governing Board considered such actions opportune after a review process.[2]

Recommendation 9: Accessibility

Ensure user-friendly data access and dissemination, so that statistics are presented in a clear and understandable form, released in a suitable and convenient manner, including in machine-readable form ('open data'), can be found easily, and are available and accessible on an impartial basis with supporting metadata and guidance. This also entails a commitment to respond to major misinterpretations of data by users.

[2] Rules for INI Approval were modified in April 2018 and Articles 28-30 of the new Rules consider the possibility of removing the INI classification from a time series.

131. A Public Data Access Service (SPI in Spanish) provides free and timely access to all INI through a variety of channels, including INEGI's website, INEGI's call center, Information Centers, the External Consultation Network, communication and advertising campaigns, and the Microdata Laboratory (see comments on Recommendation 4 above). The Statistics Access and Dissemination Norm provides that all INEGI data is provided for free.

132. Aside from INEGI's website, other SNIEG websites such as those of BANXICO and SHCP also provide users with statistical, geographical, and methodological information for free. In addition, INEGI maintains a website for the SNIEG (www.snieg.mx) which includes the National Indicators Catalogue, a set of key indicators established in coordination with the UEs of the SNIEG, as required by Article 56 of the Statistical Law.

133. The SNIEG Glossary promotes the use of harmonized terms. The International Data Documentation Initiative (DDI) is used for metadata, which are available through a National Metadata network.

134. The contents of INEGI's website and the SNIEG website are being translated into English, including all glossaries and descriptions of products and services. During the visit of the review team, INEGI estimated that about 70% of its website was already available in English.

135. Anonymized microdata can be downloaded from INEGI's website; specialized users have access to censuses, surveys and administrative records through the microdata lab.

136. INEGI promotes the use of information through publication of all methods, a website section "Tell me about Mexico", school textbooks including maps, Twitter, Facebook and YouTube accounts, and participation in fairs (21 in 2016). Special events are marked with web articles, e.g. a recent one of Mother's Day gave information about the origin of the day and statistics on mothers, single mothers etc. INEGI staff also give lectures to university students.

137. INEGI is continuing to work to improve accessibility, and will be reconfiguring its site to make it more user-friendly and completely available in English as well as Spanish. Attention will be paid to the needs of different types of users, e.g. "tourists", "farmers" and "miners".

138. The website of the SNIEG is much less developed than INEGI's own website, and those of other UEs may not comply with the Technical Standard for Access to and Publication of Open Data, which stipulates that INI must be made available to users in open-data principles such as that they should be public, free, non-discriminatory, in open format, machine-readable, comprehensive, timely and permanent. Efforts should be stepped up to ensure that all INI comply with open data principles, if necessary by amending Article 78 of the Statistical Law to make this mandatory.

139. While Article 33 of the Statistical Law obliges UEs to observe the "bases, norms and principles" approved by INEGI including for the dissemination of information, and Article 35.V includes provision for SNIEG co-ordinators to promote compliance, there appear to be no sanctions in case of non-compliance. It is an open question whether some means ought to be found to stimulate greater compliance. The suggestions offered under Recommendation 1 for new review processes for existing INI could, for example, include a provision for the label to be removed in case of non-compliance with the Technical Standard, or with other INI conditions as stated in the present or a revised Statistical Law.

140. Guidelines are being developed on how INEGI should respond to misinterpretations of data.

Recommendation 10: Co-ordination

Establish responsibilities for co-ordination of statistical activities within the NSS. To this end, Adherents should ensure that:

i. *the co-ordination of statistical activities among statistical producers is done through the use of standard concepts and classifications and avoids the duplication of effort;*
ii. *responsibilities for such co-ordination function are clearly laid out and anchored in statistical legislation.*

141. Article 55 of the Statistical Law establishes INEGI as the central co-ordinating unit of the SNIEG, regulating and co-ordinating the activities of the other UEs carrying out statistical functions.

142. Administratively, INEGI relies largely on the Executive Committees and Technical Committees to achieve this co-ordination. The National Advisory Council and the INEGI Governing Board provide, respectively, high-level advice and control of the Committees processes. Among the committees, co-ordination is further assured by overlapping personnel where appropriate. For example, the presidency of the group on labour statistics is represented in the economic statistics committee. Each committee also has a secretariat provided by INEGI, which produces records of its deliberations that serve as a reference for all participants.

143. Instrumentally, as noted under Recommendation 1, articles 9 to 12 of the Law mandate the Governing Board to approve ***plans for three time horizons***: one year, six years and twenty-four years, all of which cover the whole SNIEG. Consultations over these plans bolster co-ordination throughout the SNIEG.

144. INEGI also ensures co-ordination through issuing standards for the production, integration and dissemination of statistics, training programmes for staff of UEs, and registries and catalogues of data.

145. There are, however, problems in translating these instruments into effective co-ordination on the ground. As already noted, data quality is patchy at municipal and to some extent at State level. Moreover, a formal quality assurance framework is still emerging in INEGI and is generally absent in other UEs, even if specific processes such as passage through Technical Committees, and line review of data releases, provide checks on the quality of specific outputs. If the suggestions for an INEGI quality assurance framework under Recommendation 8 could be applied *mutatis mutandis* across the SNIEG, this could serve as an additional strand of statistical co-ordination. There may also be potential for the National Indicators Catalogue to serve as a means of promoting co-ordination through identification of similar data, shared methods and sources etc.

Recommendation 11: International co-operation

Commit to international co-operation. To this end, Adherents should:

- *i. encourage statistical producers to achieve common goals in statistics jointly with the statistical producers in other countries and with international organisations, with a view to developing internationally comparable statistics, to designing international standards and to exchanging information on good practice.*
- *ii. provide the necessary data for the OECD's reporting system and analytical work, in compliance with international statistical standards as recognised by the OECD and preferably using the Statistical Data and Metadata eXchange method/standard in particular for domains with internationally agreed Data Structure Definitions (DSDs).*

146. Governing Board members and INEGI Directors have been very active in ***international statistical counsels***, including the UN bodies, the OECD Committee on Statistics and Statistical Policy, and Latin American regional organisations. There were over 200 international missions in 2016, and INEGI estimates this implied participation in a total of about 148 international expert groups. Among the chief foci of their activities have been gender and environmental statistics, geospatial data, the Sustainable Development Goals, and Total Factor Productivity.

147. All requests for international travel must be approved by the President of INEGI, and mission reports are systematically required. Missions should also contribute to INEGI's overall strategic objectives. Given Mexico's size and its multiple global and regional roles, its heavy engagement with international meetings is desirable and understandable. Nevertheless, there are clear risks of spreading effort too thinly and becoming entangled in complex international dialogues. As budget pressures are likely to intensify, INEGI will benefit from having a more robust system to gauge the effectiveness of its international work and drive desired outcomes. One measure that might be taken in the short term would be to review recent mission reports to assess the strategic priority of the activity concerned. This could suggest processes that will help ensure that INEGI's international co-operation focuses on building strategic partnerships and is aligned with its 2016-2040 Strategic Plan.

148. INEGI responds to questionnaires from international bodies, including the OECD Regional and Labour Force Survey Questionnaires. It has started using SDMX to report short-term economic statistics to the OECD. SDMX use by other UEs appears to be less frequent, and should be encouraged for high-volume and high-frequency data submissions to international bodies, as well as for data exchange among national institutions. However, it is not necessarily cost-effective for low-frequency information.

149. The legal framework encourages ***co-ordination of international data requests***. Article 51 of the Statistical Law states that requests for INI received from other countries and international organisations shall be handled by the relevant agency, but must be brought to the knowledge of INEGI. Article 61 requires foreigners to obtain INEGI authorisation to conduct statistical or geographical activities in Mexico. These provisions are necessary to ensure oversight of international co-operation on data, and the provisions may be of interest to other countries where this has proven difficult to achieve.

150. INEGI is pursuing co-operation with its North American neighbours, e.g. on using satellite imagery for agricultural analysis. This could yield improved information at low cost.

151. INEGI has organized 18 international events in the last three years, including hosting an SDMX meeting in October 2016. In November 2017 it hosted the ninth ECLAC Statistical Conference of the Americas.

152. INEGI offers technical assistance to neighbouring countries in collaboration with the Mexican aid agency AMEXCID. This accounted for 21% of total international missions in 2016. It also funded and jointly established with UNOCD in 2010 a Centre of Excellence in Statistical Information on Government, Crime, Victimisation and Justice in Mexico City, leading to approval by the UN Statistical Commission of the International Classification of Crimes for Statistical Purposes. It is working to establish a Global Centre of Excellence in Gender Statistics in Mexico.

153. INEGI's commitment to helping its neighbours and the global community to improve official statistics is commendable, and the review team does not suggest that this should be scaled back. Nevertheless, it should regularly review its activities to ensure they continue to offer benefits commensurate with the investment. Other CSSP members, especially those speaking the languages of Latin America, are encouraged to step up their own capacity building in the region, and to consult INEGI when planning or contemplating these, given its wide knowledge and experience.

Recommendation 12: Innovation

Encourage exploring innovative methods as well as new and alternative data sources as inputs for official statistics, and in particular encourage statistical agencies to actively explore possibilities to use new data sources (including large datasets owned by the private sector), or to combine existing and new data sources as input for official statistics. At the same time, these opportunities are weighted against the limits of using modern information technologies and the need to maintain the quality of official statistics.

154. Article 36 of the Statistical Law empowers INEGI to conduct studies, research and training to advance the SNIEG, and specifically research on "new methodologies for the production and distribution of information".

155. INEGI's regular statistical activities are examining innovative approaches to improving data in a large number of areas, some of which have already been mentioned. Tax records are being linked with other administrative records through unique identifiers to improve measures of production, while mobile phone companies are providing data that can help improve price statistics. Tablets will improve census data collection. Surveys of the incidence of crime are being compared with records of crimes. The speed and detail of information flows is enabling much faster visualisation of problems – the review team was shown block-level information on damage from the earthquake of 19 September 2017 which had been compiled only 24 hours after the event.

156. Since, 2009, INEGI has also had a ***research division***. It currently consists of five permanent and two temporary researchers, plus assistants. Its 2017 research programme, approved by the Governing Board and in line with the 2016-2040 Strategic Plan, includes projects to:

i. implement ILO recommendations in INEGI labour force statistics
ii. analyse Twitter data to determine users' moods as a complement to well-being indicators, with data updated automatically in real time at the State level. This work has included sentiment analysis after the recent earthquakes, which gave an hour-by-hour read-out of positive versus negative emotions after the catastrophes.

iii. combine survey, national accounts and tax record data to improve the picture of income distribution and inequality.

157. The division works in collaboration with in-line statisticians across the SNIEG and co-operates with academia. A recent collaboration was with the Ministry of Tourism to assess how many people are planning or on holidays, and where. Tweets in holiday areas can be used for mood analysis: a preliminary hypothesis is that the positive moods are mainly among the tourists, and the negative moods mainly among the resident population.

158. The Tourism Ministry has itself made successful forays into ***Big Data***, including with a commercial bank to analyse tourist spending using credit card data. This yielded useful information, but required work by five staff over an extended period. The Ministry has good international collaboration on data with countries in the Americas.

159. Other UEs of the SNIEG are also exploring innovative ways of compiling data. BANXICO is exploring which new sources of data can help with balance of payments statistics, especially regarding electronic commerce, in order to improve information in the services account. The Finance Ministry is exploring accounting harmonisation across government and automation of administrative records to improve government finance statistics.

160. With regard to ***geospatial data***, INEGI has developed training courses and workshops on data mining and topographic information. It has published a Digital Map of Mexico with information on topography, geodesy, natural resources, population, roads, businesses etc. This also draws on information from the Ministries of Energy and of Agrarian, Territorial and Urban Development. The Digital Map is on an open-source platform with free software components to encourage its wide use. INEGI staff have improved the detail of mapping down to block level and are working on crowdsourcing to update mapping with changes that people can observe around them.

161. The Gender Atlas, a web application, enables geospatial visualisation of gender gaps.

162. Other initiatives include the publication "Reality, Data and Space: International Journal of Statistics and Geography", which appears three times a year; a research support fund; and the creation of the Academic Advisory Council in 2010.

163. Overall, it is clear that Mexico is very active in statistical innovation, and other NSOs may well be interested in learning from its experiences – including the fundamental advantage for exploiting "big data" opportunities of an institutional set-up that combines responsibilities for statistical and geo-spatial data. Nevertheless, some limitations and cautions are in order:

i. use of ***credit card data, Airbnb records, and tweets*** carries privacy implications, many of which may not have been envisaged at the time laws and regulations protecting data privacy were framed. As technological possibilities continue to expand, INEGI needs to keep the legal framework for use of personalised microdata under review so as to strike an appropriate balance between administrative efficiency in compiling needed data, and citizens' rights not to have private information put into the public domain against their will.
ii. development and ***integration of new data sources into existing statistical collections*** is a time-consuming and delicate business. Significant resources and expertise need to be invested to align new data with those from traditional sources. Projects need to be carefully appraised in advance and continuously monitored

during implementation to ensure that they deliver information benefits commensurate with the resources being invested.

iii. at the same time, ***innovation is risky***, as it carries researchers into new and unexplored fields. The success of any given project cannot be guaranteed in advance. The risk of failure needs to be accepted, and failures need to be acknowledged and documented so that lessons are learned that can improve the chances of success of other initiatives.

iv. ***institutional frictions*** need to be carefully managed. Line areas may be understandably reluctant to divert scarce resources to "blue sky" projects which may or may not improve data or save time in the long run. Managers need to carefully manage the interactions between researchers and regular staff to ensure maintenance of positive and collaborative relationships within research projects.