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Strategic direction of the Committee on Statistics:
Proposed future work

Proposed strategic directions of the Committee on Statistics

Note by the Bureau

Summary

The purpose of the present document is to outline a draft proposal developed by the Bureau of the Committee setting out a number of strategic areas that the Bureau proposes should shape much of Committee's programme of work over the next five years. It is also meant to articulate a longer-term strategy for cooperation between national statistical institutions in the ESCAP region over the next two decades aimed at reducing the costs of managing the life cycle of statistical data in the respective statistical systems.

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I. Introduction

1. National statistical institutions (NSIs) face many critical challenges in the twenty-first century. Governments and international organizations around the world make large investments to manage critical issues. They need information to help the formulation of good policy, assess the impact of the investments and refine government programmes. The range of information required is continually expanding and the urgency with which it is needed has accelerated, driven by an increasingly complex and interconnected world. Some of the critical areas relate to recognition by governments and societies of the importance of addressing a range of key social issues, managing the impacts of shocks, such as the recent global financial systems failure, and other significant trends such as globalization, terrorism, climate change and the growing emphasis on sustainability.

2. Complex problems have multiple causes and require different information views. However, these different views need some coherence to reduce confusion and support effective evidence-based decisions. NSIs have a key role in assisting coherent and logical analysis of data from multiple sources. The fundamental business of NSIs is to assist governments, businesses and communities in making informed decisions. As institutions, individually and collectively, NSIs work to provide a coherent base of information with accurate measurement of change over time in key economic, social, demographic and environmental statistics. NSIs provide additional value through attention to coherence in a number of dimensions: particular areas of their nations; key groups and domains (the young, the aged, the working population, indigenous people, or domains of policy interest, such as disadvantage, health, education, the economy, the environment); comparison of individual nations with similar nations; and international statistics (either for regions of the world or the entire world).

3. Citizens are also expecting more from government. There is a resurgence of social conscience in various fields, perhaps enabled by improved education and access to information and like-minded people through technology. There is often strong community interest in assessing the success of government in tackling problems and in working with government to design effective programmes. The mechanisms for the community to raise issues with government are also expanding in range and power with the increasing use of the Internet and mobile communications to circumvent traditional media and public relations mechanisms. The debates are becoming more open, visible and volatile. Many governments are beginning to look at how to use web 2.0 and the emerging web 3.0 to transform government services and interaction.

4. More broadly, the revolution in the speed with which information is becoming available is creating new information products and new ways of combining and using information. These alternative sources of information are sometimes updated in real time and are available with fewer constraints and with greater detail than the information provided by NSIs. In addition to the wealth of administrative data generated by business activity, there is an ever increasing pool of data generated from personal devices, sensors, instruments and computers. Examples of such sources are retail scanners, scientific equipment, imaging systems, transport systems, telecommunications networks and even metrics collected about people's use of the Internet. There is a blurring of the boundaries of official statistics. A range of other organizations and institutions are publishing statistics, sometimes released more frequently and often widely used to complement or pre-empt the official versions.

5. Against this background, it will be important for the Committee on Statistics to develop strategies and an associated programme of work for each biennium that will be seen to be adding real value to the work of the Commission, which is a forum for all Governments of the region to review and discuss economic and social issues and to strengthen regional cooperation. Given that the overall objective of ESCAP is to promote inclusive and sustainable economic and social development in the Asia-Pacific region, with priority accorded to the achievement of the Millennium Development Goals, the Committee on Statistics can and should play a vital role in informing the Commission on the progress being achieved in delivering against its overall objective and priorities.

6. In paragraphs 7-19, a range of strategies is proposed to achieve this outcome.

II. Advocacy for the key role of official statistics in an informed society

7. If the work of the Committee is to have any real impact on statistical development within the region, it will be essential to gain clear recognition and support from all key stakeholders in member countries (politicians, government officials, media, business and community groups as well as the general public) for the key role official statistics can, and should, play in assisting and encouraging informed decision making, research and discussion at all levels of society.

8. The head of each NSI should play a key role, together with their senior management team, in developing engagement strategies for each of the key stakeholder groups. They should seek to build a coalition of key stakeholders that recognize and champion the role of official statistics in their society and are prepared to support the allocation of scarce resources to this end. Sharing strategies and experiences between the heads of NSIs within the ESCAP region in the Committee on Statistics, and looking for opportunities within the ESCAP community to continue to advance recognition of the importance of developing a robust and coherent range of internationally comparable official statistics will be essential elements of the work of the Committee on Statistics under this strategy.

III. Building the statistical capability of NSIs in the region

9. Further significant progress in improving official statistics for the region will require that adequate resources, particularly sufficient staff with appropriate skills and experience, are made available on an ongoing basis to each NSO to enable them to develop and sustain a core programme of official statistics to inform the nation and its leaders in the four key pillars of national statistics; economic, social, population and environment. The advocacy strategy outlined above will be important in this regard but by itself will not be sufficient.

10. There is a long history of statistical capacity-building initiatives across the ESCAP region taken by a range of international, regional and national institutions and organizations with SIAP having played, and continuing to play, a key role in the technical skills development in NSIs in the region over the past 40 years. Other capacity-building initiatives have been escalating in recent years as the economic significance of the region globally has grown.

11. It will be important for the Committee on Statistics to develop strategies that can ensure that future technical assistance initiatives in the region are aligned with the real priority needs of the countries themselves. The Committee should take a strong leadership role, ensuring, in particular, that international efforts to build the capability of various NSIs in the region to improve the breadth, comparability and quality of statistics produced, are properly coordinated, prioritized, and most important of all, implemented in a sustainable way.

12. Too often in the past, this has not been the experience in the region, and the opportunity is now there to do much better. This will require close collaboration between the Committee on Statistics and not only SIAP but also other key interested bodies, such as the Secretariat of the Pacific Community (SPC), the Asian Development Bank, the World Bank, the IMF, WHO, ASEAN, the OECD, the European Union, PARIS 21, AUSAid and others.

IV. Administrative data as a key statistical resource

13. In many developed countries in particular, the use of administrative records as a key resource for use in compiling official population, economic and social statistics has been well established for many years. However, for many countries in the ESCAP region, this tradition is not as strong, and there is a challenge for the statistical community to develop strategies that will assist NSIs in fostering better recognition by politicians and other senior government officials of the potential strategic importance of administrative records as sources of official statistics (such as birth and death registrations, taxation records, health and education records).

14. Realizing this potential will require strong collaboration between NSIs and other government agencies to maximize the development and use of these administrative sources for official statistical purposes. Adopting a concept, such as a national statistical service, defined as being the community of government agencies, led by the national statistical organization, collaboratively building a rich statistical picture for a better informed society, may be one means to achieve this aim.

15. The adoption by the United Nations of the Millennium Development Goals, initiatives such as those of PARIS 21 to build national statistical strategies and a road map for statistical capacity-building in less developed countries, the current decennial round of population censuses around the world and the 2005 and proposed 2011 ICP programmes, have helped spotlight the importance of good statistics and appropriate institutional arrangements to deliver them.

16. A number of key streams of work initiated at the first meeting of the Committee, such as on vital registrations and development of a core range of economic statistics for the region are directly relevant and can form an important part of any future strategies in this area of endeavour. More generally, using the mixed experience to date across the region in being able to measure progress towards the Millennium Development Goals effectively, could be used as a catalyst to highlight the shortcomings in, and opportunities to establish and/or improve, administrative sources for statistical purposes.

V. A coordinated voice from the region in international statistical frameworks, methods and standards development

17. NSIs collectively have an important role in evidence-based policymaking by enabling comparison of data across regions, countries and the world. By supporting international statistical standards, NSIs provide governments with the opportunity to assess the success of similar policy interventions in other countries, whether prior to making significant investment, during implementation or once programmes are established. For global issues, the importance of coherence across the international statistical system is even more pronounced.

18. The Committee on Statistics should have as a key strategy to develop a strong, well coordinated regional voice in international statistical standard setting forums. A voice that is not only heard but one that influences and shapes the development of new or revised statistical frameworks, classifications and standards such as those developed under the auspices of the United Nations and other international bodies. This would ensure that the particular needs of the ESCAP region are accommodated and the future work of these bodies is meaningful to the countries of the region.

19. The Statistical Commission at its most recent session established a Friends of the Chair project to assist the Commission with identifying the causes of the low and slow adoption of the 1993 SNA and to make suggestions for the way forward, given that the 1993 SNA has been updated to the 2008 SNA.[1] A number of countries in the region have agreed to participate in the work of the Friends of the Chair. However, this United Nations initiative provides an ideal opportunity to develop a coordinated approach to providing feedback from the region on the issues and challenges being experienced in implementing a critical statistical framework designed to support the provision of a range of macroeconomic statistics that are comparable both within the region and more broadly internationally.

VI. Two overarching strategic goals for 2020 for the Committee on Statistics

20. In paragraphs 22 to 42 below, two possible overarching and long-term strategic goals for the Committee of Statistics are discussed. These goals provide a strategic framework to inform the longer-term outcomes that the Committee has established.

A. Goal 1

All countries in the region have the capability by 2020 to provide an agreed basic range of population, economic, social and environment statistics

21. Most, if not all, national statisticians in the region are seeing growing emphases being placed by governments on the importance of evidence-based policy. There is increasing interest in regional and population subgroups, in distributional impacts of economic development and in the social and

[1] See *Official Records of the Economic and Social Council, 2010, Supplement No. 4* (E/2010/24), Chap I, Sect. B, Decision 41/106, para. (p).

environmental aspects of economic growth. This is leading to an upsurge in demand for a broader and more complex range of statistical services and a need to invest more in statistical capacity-building in the region.

22. The ESCAP region will be one, if not the, economic powerhouse of the global economy throughout the twenty-first century. Therefore, although it will be important to both recognize and respect the differences among the many nations of the region in terms of their economic, social, political and cultural identities as well as the diverse scale of their societies, it will, at the same time, be important for official statisticians within the region to collaborate in developing common ways of measuring the economic, social and environmental phenomena in our societies. A good starting point will be to work within the ESCAP Committee on Statistics, in collaboration with SIAP, to ensure that all countries in the region have the capability within the next 10 years to provide the basic range of population, economic, social and environment statistics essential for any society to operate effectively in the twenty-first century.

B. Goal 2

Creating a more adaptive and cost-effective information management environment for NSIs through stronger collaboration

23. Effective NSIs of the future will continue to provide a framework of stable, trusted, regular and coherent base of key national and international statistics. In addition, they will need to be able to rapidly combine data from official statistics and a wide variety of other sources to produce coherent information relevant to current and emerging issues. They will be responsive and agile at mounting new collections to fill gaps and to answer new questions. They will maximize the availability of information through the innovative use of methods and tools which allow data to be combined and analysed while ensuring privacy and confidentiality requirements are preserved. They will further develop and share our strong information management capabilities and work effectively with others to encourage innovation in information management and use.

24. As new information sources are developed or discovered, they will need to be able to incorporate the most useful into the enduring fabric of information available to their governments for informed decision making and into the base of important international statistics. NSIs could also take steps to shape how new information sources are developed and used as we have the tools, the people and the credibility to be a creative partner in this field.

25. Unfortunately, the current approach to developing international and national statistical frameworks, standards and classifications is slow and considered. The approach suits the need for comparable statistics over time, but is a significant barrier to rapid change. It can take decades and great expense for new versions of existing standards to be implemented around the world, and for many pragmatic reasons some countries do not ever implement them. This means that often our current data are not viewed by key stakeholders as fully relevant to new areas of information enquiry, particularly when compared to some of the more agile and informal information sources. The outdated nature of our frameworks can also complicate the analysis task, as users attempt to make their own adaptations to suit the real world. We need to consider approaches which preserve the comparability of statistics but enable rapid ways of producing additional statistical models to reflect contemporary changes

taking place in the economy and society and in our different national interests, international interests, contemporary activities and issues.

26. In this context, tools and approaches that have worked well for NSIs in the past, may not serve them so well in the future. Much technology investments for example, have been focused on supporting individual processing models and, although they share international frameworks, information about approaches and sometimes technology, most of their systems are individually developed for their own purposes. Their limited technological resources are consumed by cycles of development and modernization attempts.

27. Discussions have already begun within a small number of organizations in the international statistical community about what future new information management capabilities might be required to meet these challenges, how NSIs might work together to obtain them, and to understand what actions might need to be taken now to ensure that opportunities are not compromised in the future. Although the initial work is currently being undertaken by more developed NSIs, the potential benefits could be realized by all NSIs and in fact, NSIs with less developed information management capabilities at present, may be able to avoid many of the costly inefficiencies and constraints currently confronting many more developed NSIs.

1. From static data products to "common information services"

28. Many NSI websites contain a mix of information products. These include electronic publications supported by more detailed data products in a variety of formats (spreadsheets, data cubes, data warehouses) and other products, such as confidentialized microdata files and information about standards and classifications. The standards and classifications are often not explicitly linked to the data products which use them, and searching and finding specific data is often a manual process, unique to each organization's website.

29. In the future, it should be possible to bring together information automatically and repeatedly, in ways currently unimaginable and at speeds that cannot now be envisaged. NSIs need to support the demand for assembly of data from different sources, including their own, and at the same time protect the confidentiality of the data. They have, individually and collectively, significant data assets of value to others. Society and governments are exploring ways to unlock public sector information and a shared approach by NSIs has the potential to assist this drive. We should consider how to establish common information services to attract development investment from the commercial, government and non-government arenas to support this future. If enough momentum is achieved through a common approach, other organizations and individuals will choose to connect their services and innovations to those of NSIs. Working as a group will not only make it easier for these organizations to deal with NSIs, but also should result in richer services and reduced costs.

2. Defining a "common information services" business model

30. Under this scenario, NSIs would need to have the following:

(a) Common metadata services on their websites. The metadata services would provide descriptions of the data elements in each information product including definitions of the rows and columns of each table or file, links between data element definitions and data products, links to data quality

information, descriptions and concepts. Visitors to NSI websites would be able to browse or search the repositories to find information about which data elements are available, in which combinations, and from which specific data products. It is important that the information is also machine searchable and provides metadata services to other applications both on NSI websites and elsewhere, allowing clients to rapidly assemble data from multiple sources;

(b) As a companion to a common metadata service, NSIs would implement one or more common data services. NSIs are already struggling to produce and assure the quality of the many different cross-tabulations that users require. The process of individually crafting these takes resources and time, slowing down the ability of NSIs to respond quickly enough. Many NSIs have recognized that the solution is to invest in dynamic data services which allow clients to specify the information they require and generate this dynamically from “raw” data. Examples of this already exist (for example, the ABS Census TableBuilder product);

(c) NSIs would have common confidentiality services as well. Because of the need to protect confidentiality, NSIs typically hold a great deal more information than they can release. There are complex approaches for ensuring that data released meets confidentiality requirements. For example, some NSIs currently apply a perturbation method which “works” for simple count data but is not directly applicable to other types of data. Other types of data might include continuous variables, longitudinal data or composite data sets. There is a need for several different confidentiality methods, depending upon the characteristics of the data being accessed;

(d) Integrating common data, metadata and confidentiality services, NSIs would also need to design approaches which support the ability to dynamically link their data and the data and services from elsewhere. Dynamic data linking services offered by NSIs and through their websites should allow comparison and combination of data from multiple sources;

(e) NSIs would partner with industry and with government to stimulate and enable new ways and means for individuals, businesses and communities to gain access to and to use publicly available data.

31. The combination of these services would also provide important functionality for future access to more sensitive microdata. A number of NSIs already have remote access data laboratories (RADL) providing a batch submission process, which allows researchers to submit programmes against data that is not available to them in raw form. It has a heavy reliance on assessing and preconfidentializing the unit data being analysed. Future development aspirations are to move this towards an interactive service, with the focus on dynamically confidentializing outputs before it is provided to the client. This is far from a trivial challenge. However, NSI expertise in methods for "confidentialization" of data is relevant to all data custodians. Further development of common approaches could be used in many organizations to support information sharing, to increase access to statistical data and potentially to support new data-linking approaches across multiple organizations.

32. There will be many very important cases where the information required by clients will still be built from pre-assembled data products. Some obvious examples are: time series of data; products such as national accounts, where the information is assembled from multiple sources within a standard framework; products such as price indices, where the assembly process involves complex

calculations, such as chain linking; and very large datasets, where the processing cost of creating everything dynamically might be too high. NSIs should also share information on investigations into approaches for managing these cases and providing them to their clients through the same metadata and data services mentioned above.

3. From publications to communication

33. Publications from specific data collections will remain important, but there will be a subtle change in their role. They will become alerts, which warn data users that new information has become available, that announce the key headline stories in the data in a way that other agents, including the media, can easily convey to the community, and that direct clients via active links to the richer data available through the data and metadata services.

34. This separation of the data services from the presentation process will support the use of new ways of exposing and communicating the meaning stored in statistical data, such as those described by Hans Rosling, Professor of International Health at Karolinska Institute and Director of the Gapminder Foundation, which developed the Trendalyzer software system. There are many other examples of innovation in this area, and the techniques that are available will continue to evolve. Successful NSIs in the future will provide their information in ways which support and encourage these different ways of communicating the underlying messages in the data.

4. Support for transaction data flowing at a much higher volume

35. The volume and sources of real-time or near real-time data are increasing exponentially. Different industries and sources use different metadata and data standards, but these are often common within areas of interest across the world. For example, to support banking transactions for customers everywhere, there are standards used by many banks. Major manufacturers of business equipment, such as cash registers and scanners, operate globally and use standards such as barcodes and RFID. This is also true for telecommunications, travel, and manufacturers of other equipment used within societies (such as traffic lights) and for spatial information (including satellite data, Google maps and GPS data). A collective approach to determining the best ways for NSIs to incorporate this data into the information stores for their countries would be useful, as would discussion about how to judge which data might be retained to inform future policy debates. This work could include determining common approaches for data discovery, data exchange and, perhaps, data warehousing/archiving and access to data.

5. Ability to rapidly incorporate new issues and views of data into standards and classifications

36. The use of standards and frameworks will continue to be important to support coherence. However, a way is needed to rapidly incorporate new issues and views of the data, without perturbing the base. As well as supporting international standards, NSIs have to operate in different environments with some different areas of key concern. Users of NSI data also need to adjust or augment the standard classifications to better suit their analyses, situation or environment or to compare the data with pre-existing data provided by others. Classifications need to be dynamic and supported by automatic ways of transforming the data quickly, such as automatic coders. Automatic approaches are important because they enable multiple views without significantly increasing cost or time. This includes rapidly recoding existing data sets,

coding large amounts of "un-coded" data, "multi-coding" data or recoding data on demand. A couple of NSIs have already undertaken research into some promising new techniques, using machine learning. Because coding techniques have broad applicability and the function can be quite discrete, it would be preferable to collaborate in the development of new coders based on these techniques. Use of common facilities in multiple organizations (including those who provide data to NSIs) would also support consistent coding and higher data quality.

6. “Rapid-response” capability

37. Often, existing collections of data are not sufficient to answer new questions. If statistical planning processes are operating well, NSIs should have the basic baseline data to shed light on an underlying social, economic, or environmental issue. However, when a policy direction is set, and an "experiment" is under way, governments will need up-to-date information about the outcomes and how these relate to their investment. They will need to make comparisons with what has happened in the past or is happening elsewhere.

38. Successful NSIs of the future will be required to mount new collections, or adapt existing ones, quickly and responsively. These new collections may be “traditional” data collections run by an NSI, or they may involve diving into data which is available through other organizations' systems or websites, or both. Culturally, NSIs have a strong bias towards, among other things, stable data series, and developing collections using careful evaluation of a wide range of user needs, thought into the underlying conceptual framework, careful development and testing of questions and questionnaires, samples designed for optimal efficiency, processing systems tailored and tested in advance, data edited comprehensively, information analysed carefully and publications constructed and presented. All these are valuable approaches, but additional and different approaches will also be crucial.

39. Technology or methodological changes can be expected to help us to achieve more rapid response, but changes to the mindset, the capability and the capacity of skilled staff will also be fundamental. NSIs need to be able to form agile teams with a combination of relevant expertise (statistical, analytical, technical and policy-related) and equip them with the mandate and tools required to respond quickly. In addition to the capabilities already mentioned, some of the tools and infrastructure required are question modules, web survey facilities, call centres for follow-up or interview, extract, transform, load (ETL) tools, additional confidentiality approaches, data warehouses to store the results and website facilities to share them. NSIs need agile legal approaches that can help to remove barriers to data exchange, such as template data-sharing agreements and licences, such as Creative Commons. NSIs need engagement mechanisms which make it easy to involve people (with academic, commercial, NSI or other backgrounds) in the work of these teams and, if possible, shared approaches to the development of these people.

7. Connecting processes and passing metadata and data easily between them

40. Once an initial rapid response has proved its worth, provided that the underlying demand remains, successful NSIs will have to improve and institutionalize the new information stream into their existing core production processes.

41. A commitment to a standard way of describing information using a format (SDMX/DDI is proposed) would allow the connection of statistical process steps together more easily over time as NSIs develop or redevelop key parts of its systems. This would also enable others to provide NSIs with functionality more easily.

8. Analysing assemblies of data

42. Tools being developed in the Web 2.0 semantic web space hold the promise of new and more efficient ways of analysing metadata stores. The use of a standard approach, such as SDMX/DDI containing links between particular aspects of information (for example, data collections which use a specific data element, questionnaires and forms used to collect the information, data quality statements about the collection) will support improved and better directed investigations by skilled statistical staff into any discrepancies between disparate data sources. It will also provide insights into how the data should or should not be used.

9. Goal 2 Summary

43. The areas mentioned above under Goal 2 are examples of where members of the ESCAP Committee on Statistics might profitably collaborate and innovate as a community of NSIs. Each NSI is likely to have a view of where investment in change is required and the development of a programme for collaboration on innovation would require NSIs to explore these views and agree on some initial candidate areas.

44. The individual approaches of NSIs are not as adaptive as might be desired. In general, NSI strategies have been to either attempt large "whole of system" transformation programmes, or to deal with particular parts of the process at particular points in time. NSIs have tended to engineer processes and systems for current problems rather than look at what is needed for the future. Such strategies are only appropriate for a relatively "steady state" environment.

45. However, the level of change necessary in the next decade or two in NSI information management environments is likely to be profound and it is unlikely that many NSIs in the region will be able to make the investments required to facilitate change at the rate required on its own. Technology environments in use today are likely to be substantially irrelevant in the future, so the current approach of redeveloping large components of statistical infrastructure every 5-20 years will not serve NSIs well. Instead, NSIs will need an approach that evolves smaller components of their statistical infrastructure much more rapidly, and which also enables them to inject and attach new functionality as soon as it appears into these environments.

46. As an international statistics producing community, NSIs need to plan to build standard approaches together while still having the relevance to force such standards. It will be important to make some decisions as a community about what needs to be standard, choose some standards even if they do not represent the best "technical" approach and then evolve these over time if required. As a community of organizations, the "buying power" of NSIs can be amplified if there is agreement on common requirements and design. It may be difficult to reach agreement on the requirements for large components (such as an entire input data warehouse), but if NSIs start with components for some of the smaller, relatively discrete functions of statistical processing, these could be built into larger components over time.

47. Although there are significant institutional and other barriers to achieving such a goal, the success of a number of open-source and cross-government projects should encourage NSIs in their thinking on these challenges. More effective collaboration has the potential to reduce the costs for each NSI to build and maintain software and enable NSIs to make stronger investment in particular areas of its work. There is also considerable potential to accelerate the availability of statistical infrastructure above what even more developed NSIs could reasonably aspire to achieve individually and at the same time enhance support for the statistical systems of developing nations. Combined with efforts to enhance statistical skills, a stronger base of statistical infrastructure shared with other organizations should also assist the statistical leadership aspirations of NSIs within their own societies, reduce development and cost duplication, and could ultimately drive the emergence of a truly integrated global statistical information system.