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Report of the Expert Group on the Integration of Statistical and Geospatial Information

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Report of the Expert Group on the Integration of Statistical and Geospatial Information

Note by the Secretary-General

In accordance with Economic and Social Council decision 2014/219, the Secretary-General has the honour to transmit the report of the Expert Group on the Integration of Statistical and Geospatial Information. The report provides information on the recent activities of the Expert Group carried out since the forty-fifth session of the Statistical Commission. It summarizes the major outcomes of the first Global Forum on the Integration of Statistical and Geospatial Information, held in New York on 4 and 5 August 2014, in conjunction with the fourth session of the Committee of Experts on Global Geospatial Information Management, held in New York from 6 to 8 August 2014, and the main findings of the International Workshop on Integrating Geospatial and Statistical Information, held in Beijing from 9 to 12 June 2014. The report also presents information on a consultative meeting of the Expert Group with regard to the review of its work programme and the preparation and formulation of plans for future progress.

The Statistical Commission is invited to take note of the report.

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Report of the Expert Group on the Integration of Statistical and Geospatial Information

I. Introduction

1. At its forty-fourth session, held from 26 February to 1 March 2013, the Statistical Commission, in decision 44/101 of 1 March 2013 (see E/2013/24, chap. I.C), welcomed the proposal to organize an international conference as a way of enabling outreach and developing best practices, bringing together both statistical and geospatial professional communities, and requested the Statistics Division of the Department of Economic and Social Affairs of the United Nations to establish an expert group composed of representatives of both statistical and geospatial communities to carry out the work on developing a statistical-spatial framework as a global standard for the integration of statistical and geospatial information.

2. At its third session, held from 24 to 26 July 2013, the Committee of Experts on Global Geospatial Information Management (UN-GGIM) adopted decision 3/107 of 26 July 2013 (see E/2013/46, chap. I.B), in which the Committee of Experts supported the decision by the Statistical Commission to create an Expert Group on the integration of statistical and geospatial information, comprising members of both the statistical and geospatial communities and also supported holding an international conference on the topic.

3. Pursuant to Statistical Commission decision 44/101, the Statistics Division established the Expert Group on the Integration of Statistical and Geospatial Information in 2013, comprising members of both the statistical and geospatial professional communities of Member States. At its first meeting, held from 30 October to 1 November 2013, the Expert Group determined its programme of work (see ESA/STAT/AC.279/L4, annex 4). It reported back to the Statistical Commission at its forty-fifth session in March 2014, and to the Committee of Experts on Global Geospatial Information Management at its fourth session in August 2014. The Expert Group sought and obtained the endorsement of the Commission and the Committee of Experts for its terms of reference (see ESA/STAT/AC.279/L4, annex 3), including its reporting procedure, whereby the Expert Group will report to the Commission and the Committee of Experts.

4. In this regard, the present report summarizes the recent activities of the Expert Group carried out since the forty-fifth session of the Statistical Commission, including the major outcomes of the first Global Forum on the Integration of Statistical and Geospatial Information, held in New York on 4 and 5 August 2014, in conjunction with the fourth session of the Committee of Experts on Global Geospatial Information Management, held in New York from 6 to 8 August 2014, and the main findings of the International Workshop on Integrating Geospatial and Statistical Information, held in Beijing from 9 to 12 June 2014. The report also presents information on a consultative meeting of the Expert Group with regard to the review of its work programme and the preparation and formulation of plans for future progress.

II. Global Forum on the Integration of Statistical and Geospatial Information: major outcomes

5. In accordance with Statistical Commission decision 44/101 and Committee of Experts decision 3/107, the Statistics Division, in collaboration with the Expert Group on the Integration of Statistical and Geospatial Information, convened the first Global Forum on the Integration of Statistical and Geospatial Information in New York on 4 and 5 August 2014, in conjunction with the fourth session of the Committee of Experts. In pursuance of its objectives of reaching out and developing best practices and of bringing together both the statistical and geospatial professional communities, the Global Forum gathered more than 200 participants from 73 countries to discuss the strategic vision and goals for the integration of statistical and geospatial information. It continued the global consultation and communication on the development of a global statistical-geospatial framework, initial consideration of which coincided with the inception of the Expert Group in November 2013. A full list of participants is available from http://ggim.un.org/Global%20Forum.html.

6. The programme of the Global Forum was strategy-oriented. It consisted of an opening session to set the global context for the main theme of the Forum, which encompassed a strategic vision and goals for the integration of statistical and geospatial information, and four subsequent sessions whose goal was to enable the discussion on what had been achieved so far towards realizing the vision of integrating statistical and geospatial information, and what still needed to be done (see http://ggim.un.org/Global%20Forum.html). Experts from the statistical and geospatial communities were compelled by emerging trends to look for common ground, and their contributions were fully supportive of the need to integrate statistical and geospatial information, including through the development of a statistical-geospatial framework, the building of capabilities and expertise, the adoption of common terminology, and better coordination and cooperation.

7. The Global Forum offered a good opportunity to better understand future challenges and what actions by both national statistical offices and national geospatial information authorities would be required in integrating statistical and geospatial information.

8. It was acknowledged that in order for the objective to be met of providing a forum for coordination and communication among representatives of both statistical and geospatial communities, with a view to working closely with the big Bata community, it was important to first define common terminologies and share agreed protocols. It was also noted that while data collection, processing, analysis and operations are important, even more important are the access to and sharing of data, particularly the communication of related information and knowledge sought by end users.

9. Participants stressed the fact that institutional integration within a country to support statistical and geospatial integration requires a strong political commitment. In this regard, advocacy of the benefits of linking socioeconomic data to a location, and the value proposition of integrating statistical and geospatial information, should be conveyed to decision makers and policymakers, allowing them to understand the need of national institutions for adequate resources so as to achieve the required integration.

10. One of the recurrent key issues discussed was the variety of geographical classifications, practices and approaches used to determine and represent geographical units for statistical purposes. In this regard, there was agreement on the need for a comprehensive study and methodological guidelines on the advantages, benefits and appropriate use associated with a grid-based approach, a population/administrative approach and a mixed approach to the compilation and dissemination of statistical data and information.

11. Participants stressed the challenges that national statistical offices and national geospatial information authorities face, with the advancement of technology and the associated demands for greater data accessibility, in maintaining data confidentiality and privacy. It was recommended that national statistical and geospatial organizations take extra steps to safeguard confidentiality, not only in the microdata provisions, but also with regard to small areas with geographic information systems (GIS) presentations, and corresponding spatial analysis capabilities. Noting that, potentially, confidentiality breaches can occur with outsourcing services, it is now a requirement that safeguards, by way of specific or explicit provisions in contracts with service providers, be provided and adhered to.

12. The benefits of developing, adopting and implementing technical standards and common metadata have been recognized by the participants from both statistical and geospatial communities, as they enable interoperability and facilitate the integration and use of diverse sources of statistical and geospatial data and services in all sectors of a global economy. It was noted that the development of common standards and metadata would make statistical and geospatial information more interoperable, and therefore more useable and relevant to a wider range of stakeholders.

13. Geography is increasingly recognized as key to virtually all national statistics, providing a structure for collecting, processing, storing, aggregating and disseminating data. It was noted that many national statistics offices are already transforming, or are planning to transform, their statistical infrastructure, which offers an opportunity to embed geography into their national systems and processes; indeed, such activities can contribute to the modernization of statistics. It was also noted that there is a strong spatial dimension to environmental-economic accounting which can benefit from the integration of statistical and geospatial information.

14. The fact that providing a greater geographical context for population census information is also an important driver was noted by the participants. In this regard, there was agreement that the 2020 Round of Censuses should offer an opportunity to enhance the geospatial capabilities of national statistical offices, including opportunities for efficiencies. The need for agreement on a course of action for the development of a statistical-geospatial information infrastructure in support of the 2020 Round of Censuses was stressed.

15. Participants recognized that adding geospatial capability to statistics requires the codification of location attributes linked to socioeconomic statistical information, exemplifying the concept of geocoding. Geocoding, including geocoding of addresses, was indeed recognized as a fundamental building block in the maximization of the spatial potential of statistical information. The Expert Group should agree on a common approach to geocoding address information, entailing, for example, the addition of a geocoded reference (ideally, latitude and longitude) in each data record in the data management system, and the use of a

common set of hierarchical geographical boundaries which are based on population numbers, so that each geographical area within each level of the hierarchy will contain similar population numbers.

16. It was noted that sharing best-practice principles, particularly centred around innovative dissemination and analytical/modelling techniques, is another mechanism for developing a consistent approach to integrating socioeconomic and geospatial information. The global analytics community has similar interests and objectives and could be a powerful ally in respect of meeting the challenge of linking socioeconomic information to a location.

17. Participants confirmed the need for an overarching statistical-geospatial framework as part of an overall information architecture at both the national and global levels. They recognized that when both statistical information and geospatial information are integrated within a statistical-geospatial framework, the geo-statistical results can significantly improve the quality of official statistics and population censuses, and the measuring and monitoring of the sustainable development goals.

III. Other United Nations-related activities on the integration of statistical information and geospatial information

A. International Workshop on Integrating Geospatial and Statistical Information

18. The Statistics Division, as the secretariat of the Statistical Commission and the Committee of Experts on Global Geospatial Information Management, and the National Administration of Surveying, Mapping and Geo-information of China jointly organized an International Workshop on Integrating Geospatial and Statistical Information, held from 9 to 12 June 2014 in Beijing. It was substantively supported by the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific.

19. The International Workshop was attended by more than 147 participants from 40 countries, 25 of whom (all from developing countries) were financially supported by the host country. The Workshop provided a platform for discussing priority issues related to developing and advancing the implementation of a global statistical-geospatial framework as a standard for the integration of statistical and geospatial information. It comprised five sessions, at which participants were able to engage with leading international experts in discussing and sharing experiences and methodologies on the following topics: (a) country experiences in the integration of socioeconomic and environmental information using geography; (b) approaches to determining and representing geographical units, including geocoding, for statistical purposes; (c) grid-based and administrative approaches to the collection, compilation and dissemination of statistics; (d) statistical analysis of geospatial information, and relevance of spatial data infrastructures and international standards; and (e) positioning for the future: trends in technology, big data, the 2020 Round of Population Censuses and the post-2015 development agenda.

20. There was general recognition by the participants in the International Workshop, from both the geospatial and the statistical communities, that the Workshop had kick-started an important journey towards uniting their professions and their business. It was stressed that users want information/knowledge, which is why data needs to be transformed into information, and that data collection, processing, analysis and operations are, indeed, a means to an end — not an end in themselves.

21. The International Workshop participants also stressed the fact that collaboration is essential: statistics and maps are part of an overall information management framework: they do not exist in isolation. Cooperation is essential, among communities, and among countries, regionally and internationally, for building capacities, lowering costs and ultimately turning data into information.

22. Coordination between the statistical and geospatial information organizations within a country is an important step in this regard. It was noted, as an example, that institutional integration is a useful demonstration of coordination and collaboration within a country and, as such, serves to support statistical and geospatial integration.

23. The International Workshop noted that geospatial data can improve the quality of official statistics (i.e., their accuracy, relevance and accessibility). It recognized in particular that population censuses are key enablers in respect of demonstrating statistical and geospatial integration for all stages — input, throughput and output — of a statistical cycle or production chain, and across collections. In other words, integration should be built up in a sustainable and repeatable way.

B. Consultative meeting of the Expert Group

24. The Statistics Division organized a consultative meeting of the Expert Group on the Integration of Statistical and Geospatial Information, on 25 October 2014 in Beijing. It was scheduled between two other United Nations events in Beijing: the Third High-level Forum on United Nations Global Geospatial Information Management (22-24 October 2014) and the International Conference on Big Data for Official Statistics (28-30 October 2014). The consultative meeting was attended by representatives of Australia, Azerbaijan, Brazil, Mexico, the Republic of Korea and the United States of America and the Open Geospatial Consortium ,who attended one or both United Nations events.

25. The consultative meeting was held for the purpose of reviewing the work programme of the Expert Group and establishing plans for achieving further progress. It specifically:

(a) Reviewed the summary report of the Global Forum on the Integration of Statistical and Geospatial Information (and discussed its implications for the work programme of the Expert Group; potential new work programme items were identified and will be considered at the next Expert Group meeting in 2015;

(b) Reviewed and updated the existing work programme, including the progress made on existing work programme items. As regards those attendees leading the discussion on such items, commitments were made to milestone deadlines. For those not attending, commitments were made by meeting attendees to

follow up with those countries and organizations concerned in order to determine progress and set agreed milestone deadlines;

(c) Identified candidate Expert Group members who could lead the work on work programme items. Existing work programme items leaders were confirmed. As no new work programme items could be agreed until the next Expert Group meeting, no new candidate leaders were required.

It was noted that in order to improve the communication strategy, there was a need to ensure that the contact list of the Expert Group was up to date. Further, the consultative meeting proposed that the next Expert Group meeting should be held in 2015 in New York or Europe, unless an alternate venue was proposed in the interim.

IV. Conclusions and the way forward

26. The participation of more than 200 senior leaders, from both national statistical offices and national geospatial information authorities of 73 countries, in the first Global Forum on the Integration of Statistical and Geospatial Information attests the importance and relevance of the integration of statistical and geospatial information. The Global Forum was particularly successful in bringing national statistical and geospatial leaders together so as to enable them to communicate with each other and achieve mutual understanding. The Global Forum welcomed future meetings of the Expert Group on the Integration of Statistical and Geospatial Information, and stressed that it was imperative that the professional statistical community, in partnership with relevant national geospatial information authorities, remain fully engaged in the work of the Expert Group.

27. In both the Global Forum and the International Workshop on Integrating Geospatial and Statistical Information, it was specifically noted that statistical and geospatial communities are major contributors of information that is used for evidence-based decision-making across many sectors, whether public or private. For such purposes, institutional coordination and cooperation between the statistical and geospatial agencies within a country are vitally important and factors key to the success of the integration.

28. It was stressed that geospatial data can significantly improve the quality) of official statistics (i.e., their accuracy, relevance and accessibility), and that Population and Housing Censuses are key enablers in respect of demonstrating statistical and geospatial integration for all stages of a statistical cycle.

29. Both statistical and geospatial communities should have a common voice in information discussions, e.g., in the context of the post-2015 development agenda at the strategic level and of the 2020 Round of Censuses at the tactical level. Further, there is an urgent need for a mechanism, such as a global statistical-geospatial framework, to facilitate consistent production and integration approaches for geo-statistical information.

30. The Statistical Commission is invited to take note of the progress of work of the Expert Group on the Integration of Statistical and Geospatial Information.