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Implementation and adoption of standards for the global geospatial information community

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Note by the Secretariat

Summary

The present paper contains the report prepared jointly by the Open Geospatial Consortium (OGC), Technical Committee 211 of the International Organization for Standardization (ISO/TC 211) and the International Hydrographic Organization (IHO) for consideration by the Committee of Experts on Global Geospatial Information Management.

At its third session, held in July 2013, the Committee of Experts, by decision 3/106, noted the close degree of cooperation among Technical Committee 211 of the International Organization for Standardization, the Open Geospatial Consortium and the International Hydrographic Organization, and stressed the importance of standards for effective data-sharing and the need for the full involvement of Member States in the development and maintenance of standards. In addition, the Committee emphasized the importance of implementing and adopting standards within national legal and policy frameworks, and noted the need for developing countries to receive support from the standardization bodies in those efforts. The Committee requested the Secretariat to continue its work with the standardization bodies and Member States and to report thereon to the Committee. The joint report is intended to inform policymakers and programme managers in Member States of the value of using and investing in geospatial standardization, and describes the benefits of using open geospatial standards to achieve standardization, data-sharing and interoperability goals.

* E/C.20/2014/1

I. Introduction

1. At its third session, held in July 2013, the Committee of Experts on Global Geospatial Information Management adopted decision 3/106 (see Annex) in which it noted the close degree of cooperation between the international standards development organizations and stressed the importance of standards for effective data sharing, as well as the need for the full involvement of Member States in the development and maintenance of standards. In addition, the Committee emphasized the importance of implementing and adopting standards within national legal and policy frameworks, and noted the need for developing countries to receive support from the standards development organizations in these efforts. The Committee of Experts requested the Secretariat to continue its work with the standards development organizations and the Member States and report back to the Committee in the future.

2. The present report provides the context of and need for a guide intended to articulate the critical role of standards in geospatial information management, and to inform policy makers and program managers in Member States about the value of using and investing in geospatial standardization. It provides an overview of the guide titled “Guide to the Role of Standards in Geospatial Information Management”, prepared by the three aforementioned international standard development organizations (OGC, ISO/TC 211 and IHO). The Committee of Experts is invited to take note of the report and to express its views on the way forward for the international geospatial information community. The Committee is also invited to endorse the “Guide to the Role of Standards in Geospatial Information Management” and the “Companion Document on Standards Recommendations by Tier” as guidelines and best practice that will assist Member States to implement and adopt the recommended standards. Points for discussion and decision are provided in paragraph 16.

II. Need for a Guide on the Adoption and Implementation of Standards in Geospatial Information Management

3. Since the second session of the Committee of Experts on Global Geospatial Information Management, the issues related to standards setting in the global geospatial information community have been extensively discussed (see E/20/2012/46, decision 2/103). The work carried out by ISO/TC 211, OGC, IHO and other international organizations has been recognized as valuable to the geospatial information community. These organizations are developing consistent and precise technical geospatial standards that form the core building blocks to enable interoperability and facilitate the integration and use of diverse sources of geospatial data and services.

4. The benefits of developing and implementing technical standards have been recognized by the geospatial community as they bring uniformity, compatibility and interoperability to millions of processes, devices, and applications in all sectors of a global economy. The paper ‘National Mapping Authority Perspective: International Geospatial Standards’ which is published alongside this document provides good examples of national and regional initiatives to highlight good practice and lessons

learned in this area. It has been also recognized that the lack of standards could be harmful, as has been experienced in many cases associated with disaster management.

5. While some countries are adopting and implementing international standards, many others are progressing very slowly or not at all, whether for a lack of resources, lack of knowledge of the standardization processes, or both. Despite the progress made, many challenges remain with the adoption and implementation of existing standards, especially with regard to governance and institutional arrangements and legal and policy frameworks, chief among them the lack of understanding at the political/policy level. There is a general recognition from Member State experts that instruments or tools are needed to emphasize and support the adoption and implementation of global geospatial standards, and to particularly reach out to the policy makers.

6. The need for specific guidelines on the adoption and implementation of standards for geospatial information for a wide variety of stakeholders, especially in government, has been clearly identified. Guidelines that can, on one hand, make the case for the value proposition associated with the use of standards and, on another hand, outline the implementation phases involved in the standardization process.

III. Content of the Guide

7. This section provides a brief summary of the “Guide” prepared by the three international standardization bodies. The Guide aims to articulate the critical role of standards in geospatial information, inform policy makers and program managers in Member States about the value of using and investing in geospatial standardization, and describe the benefits of using “open” geospatial standards to achieve standardization, data sharing, and interoperability goals. The Guide provides a model for the phased implementation of geospatial standards. It is accompanied by a “Companion Document on Standards Recommendations by Tier” on available standards and their application.

8. More specifically, the Guide: (i) defines what a standard is; (ii) makes a case for open standards; (iii) discusses why such standards are valuable; (iv) describes geospatial standards and related best practices; (v) introduces a goal-based approach to standards adoption and a multi-tiered standardization maturity model; (vi) describes emerging standards and trends; (vii) gives concrete examples of standards in use; and (viii) concludes with suggestions for next steps.

9. The Guide states that achieving the benefits of standards adoption is a journey and organizations, institutions and information communities are likely to be starting this journey at different points in the capability/maturity continuum. In this regard, the Guide provides a model for the phased implementation of geospatial standards that considers the different levels of experience and expertise of the players involved in the building of a Spatial Data Infrastructure (SDI). The model, labeled “the standardization maturity model”, following a goal-based approach to standards adoption, describes a typical standardization trajectory. In addition, the Guide gives concrete examples of standards in use at each tier of the maturity model.

10. The Guide also provides information on the emerging standards, best practices and trends, referring to two documents already available through UN-GGIM: (1) Establishment and implementation of standards for the global geospatial information

community¹; and (2) Future Trends in geospatial information management: five to ten year vision²; noting that these documents should be read in the more general context of the international sustainable development agenda. As an example of emerging trends in standards, the Guide highlights the move toward a spatially enabled Web of data. These emerging trends include: cloud computing; linked data; big data analytics; semantic web portals; mobile devices; new and dynamic geospatial data collectors; and social media / volunteered geospatial information. The Guide and its companion document are available on the GGIM website: <http://ggim.un.org/>.

IV. Supporting actions

11. The Guide supports the adoption and implementation of geospatial information standards by countries and calls on policy and decision makers to invest in geospatial standardization. In this regard, it stresses that stakeholder organizations must make clear statements regarding their commitment to using standards and, if at all possible, this commitment should be documented in procurement policy. To maximize the value of investments, organizations should use procurement language that requires vendors to offer standards-based solutions.

12. It is worth mentioning that in its 38th plenary meeting, held in Berlin, Germany 5-6 June 2014, ISO/TC 211 adopted resolution 673 “Task force to support UN-GGIM” in which it: expressed its appreciation to OGC for initiating and leading the drafting of “A Guide to the Role of Standards in Geospatial Information Management” and the “Companion Document on Standards Recommendations by Tier” (documents N 3796 and 3797); invited the members to submit comments to the task force by Wednesday June 11; asked the task force to contribute to finalizing the documents; and endorsed the submission of the documents to UN-GGIM.

13. It is also worth noting that the UN-GGIM Secretariat, in collaboration with the standards organizations, will convene a side event on standards on the margins of the fourth session of the Committee of Experts, to be held in New York in August 2014, to brief the Member States on the essential standards and the value and good practice in adopting them. Other Member States are also invited to deliver briefs on their best practices.

14. A separate but complementary paper ‘National Mapping Authority Perspective: International Geospatial Standards’ is published alongside this document. It offers an insight into international geospatial standardization from an institutional perspective, and provides examples of national and regional initiatives to highlight good practice and lessons learned. Taken together, it is hoped that these papers address some of the crucial communication elements of international standards, as well as highlighting the value of developing a culture of standards adoption across Member States.

15. The Committee is invited to express its views on the “Guide to the Role of Standards in Geospatial Information Management” and the “Companion Document on Standards Recommendations by Tier”, as guidelines to assist Member States in implementing and adopting the existing standards within national legal and policy frameworks for geospatial information.

¹ http://ggim.un.org/docs/meetings/3rd%20UNCE/E-C20-2013-8%20Establishing%20Geospatial%20Standards%20Summary_en.pdf

² <http://ggim.un.org/docs/Future-trends.pdf>

V. Points for discussion and decision

16. The Committee is invited to:

(a) Take note of the report and work done by the international standards development organizations;

(b) Express its views on the way forward for the international geospatial information community, including in recommending the “Guide to the Role of Standards in Geospatial Information Management” and the “Companion Document on Standards Recommendations by Tier” as methodological guidelines to assist Member States in implementing and adopting the existing standards within national legal and policy frameworks;

(c) Encourage Member States to adopt and implement the available standards and to work in cooperation with the international standard development organizations, including the participation in activities to be organized by OGC, ISO TC/211 and IHO;

(d) Provide guidance on the time frame within which a progress report should be submitted at a future meeting.

Annex

By its decision 3/106 on the Establishment and implementation of standards for the global geospatial information community (see E/2013/46, chap. I B), the Committee of Experts:

(a) Welcomed the report and the work done by the International Organization for Standardization (ISO/TC 211), the Open Geospatial Consortium (OGC) and the International Hydrographic Organization (IHO), and noted the close degree of cooperation between these organizations.

(b) Stressed the importance of standards for effective data sharing as well as the need for the full involvement of Member States in the development and maintenance of standards.

(c) Emphasized the importance of implementing and adopting standards within national legal and policy frameworks, and noted the need for developing countries to receive support from the standardization bodies in these efforts.

(d) Requested the Secretariat to continue its work with the standardization bodies and the Member States and report back to the Committee in the future.