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Determination of global fundamental geospatial data themes

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Note by the Secretariat

Summary

The present paper contains the report prepared by the Regional Committee of United Nations Global Geospatial Information Management for Europe for consideration by the Committee of Experts on Global Geospatial Information Management.

At its fifth session, held in New York from 5 to 7 August 2015, the Committee of Experts adopted decision 5/103, in which it agreed that there was an urgent need for a set of global fundamental geospatial data themes that could be harmonized in order to enable the measurement, monitoring and management of sustainable development in a consistent way over time and to facilitate evidence-based decision-making and policymaking. The Committee of Experts supported the initiative proposed by the Regional Committee of United Nations Global Geospatial Information Management for Europe to establish and lead a working group to liaise with the other four regional committees in order to bring together information on the consideration of fundamental geospatial data themes and to lead discussions between interested Member States and observers, with a view to developing an agreed minimum set of global fundamental geospatial data themes. The report of the regional committee for Europe outlines the actions it has carried out to advance the work on the determination of fundamental geospatial data themes at the global level. It describes the formation of the working group, delineates its terms of reference and the work plan and outlines the proposed deliverables of the group. It also provides an overview of the global consultations the working group has engaged in during the past year, including by initiating contact with the five regional committees and by hosting two consultative workshops as side meetings at major global geospatial events to consult with interested Member States and observers, with a view to developing an agreed minimum set of global fundamental geospatial data themes. These include initiating contact with all the regional entities of UN-GGIM and hosting two consultative workshops as side meetings at major global geospatial events.

I. Introduction

1. At its fifth session, held in New York from 5 to 7 August 2015, the Committee of Experts considered the report on determination of global fundamental geospatial data themes (E/C.20/2015/4). This report was prepared and presented by the Regional Committee of United Nations Global Geospatial Information Management for Europe (UN-GGIM: Europe) and recommended that a Working Group should be established at the global level to draw together current projects from different UN-GGIM regional bodies to determine fundamental data themes. The Committee of Experts agreed with the recommendations set out in the report and adopted decision 5/103.

2. In making its decision the Committee of Experts:

- a. Welcomed the report on the determination of global fundamental geospatial data themes, prepared by the Regional Committee of UN-GGIM: Europe and agreed that there is an urgent need for a set of global fundamental geospatial data themes that can be harmonised in order to enable the measurement, monitoring and management of sustainable development in a consistent way over time and to facilitate evidence-based decision-making and policymaking;
- b. Agreed that actions need to be taken by Member States and the international community to work jointly towards the formulation of a minimum set of fundamental data themes, noting the need for considering existing national and regional approaches, the specific needs and vulnerabilities of small island developing States, and appropriate technical specifications and standards, and recognizing the need to keep the efforts technical in nature so as not to raise political concerns;
- c. Supported the initiative proposed by the Regional Committee of United Nations Global Geospatial Information Management for Europe to establish and lead a working group to liaise with other regional committees of United Nations Global Geospatial Information Management to bring together information on the consideration of fundamental geospatial data themes and to lead discussions between interested Member States and observers, with a view to developing an agreed minimum set of global fundamental geospatial data themes;
- d. Noted the suggestions of Member States for the working group to consider the prioritization of the fundamental data themes, national experiences in the formulation of the data themes and linkages to other data needs within the programme of work of the Committee of Experts, and requested the working group to report on progress made in that regard to the Committee at its next session.

3. This report describes the actions which the Regional Committee of United Nations Global Geospatial Information Management for Europe has carried out since the fifth session of the Committee of Experts to advance the work on the determination of fundamental geospatial data themes at a global level. It describes the formation of the Working Group on Global Fundamental Geospatial Data Themes, outlines its terms of reference, work

plan and the proposed deliverables of the Group. The report also provides an overview of the global consultations the Working Group has engaged in during the past year to consult with interested Member States and observers, with a view to developing an agreed minimum set of global fundamental geospatial data themes. These include initiating contact with all the regional entities of UN-GGIM and hosting two consultative workshops as side meetings at major global geospatial events. The Committee of Experts is invited to take note of the report and to express its views on the actions and progress made by the Regional Committee in addressing the issues relating to global fundamental geospatial data themes. Points for discussion and decision are provided in paragraph 41.

II. Group governance and membership

4. Given that the Regional Committee was mandated by the Committee of Experts to lead the work, the Executive Committee of UN-GGIM: Europe acts as the steering group for the Working Group on Global Fundamental Geospatial Data Themes (UN-GGIM: WG Fundamental Data). The United Kingdom has been appointed by the Executive Committee of UN-GGIM: Europe to lead this Working Group, and reports directly to the Executive Committee of the regional body. The Secretariat of UN-GGIM: Europe acts as the permanent secretariat to the Working Group.

5. After the fifth session of the Committee of Experts the UN-GGIM Secretariat issued a call to all Member States seeking nominations for membership on the UN-GGIM: WG Fundamental Data. Following the call several Member States from all five regions of UN-GGIM responded expressing an interest in being involved in the Working Group. In total 14 responses were received, 11 from Member States and three from two Observer Organizations.

6. Since it is the belief of UN-GGIM: Europe that national and regional fundamental data themes initiatives must be the basis for developing agreement to a set of global fundamental geospatial data themes, the Regional Secretariat directly contacted the executives of the other four Regional Committees of UN-GGIM seeking their participation in the global working group. Besides asking for the participation of the person(s) responsible for leading the work on fundamental data within each Regional Committee, UN-GGIM: Europe also requested information about existing fundamental data themes work already being undertaken within the Regions. All four Regional Committees responded.

7. Following both calls for membership, participation in the Working Group now numbers 19, with representation from all the five Regional Committees of UN-GGIM.

III. Terms of reference, work plan and deliverables

8. The overall objective of the UN-GGIM: WG Fundamental Data is to bring together different information on fundamental geospatial data themes with a view to developing an agreed minimum set of global fundamental geospatial data themes. It is expected that the Working Group will determine a set of global fundamental geospatial data themes for consideration by the Committee of

Experts at its seventh session in 2017, and with the possibility of taking global agreement on these data themes forward to the General Assembly.

9. In order to achieve its objective and result the Working Group shall:
 - a. Produce a recommendation for a minimum list of global fundamental geospatial data themes. Each data theme should be supported by a description and guidelines;
 - b. Take account of existing activities being undertaken by UN-GGIM regional committees, ensuring that, where possible, existing resources are used;
 - c. Consider the prioritisation of the data themes and how they link to other data needs within the UN-GGIM programme of work;
 - d. Consider the specific needs and vulnerabilities of small island developing States; and
 - e. Ensure that the data themes should be technical in nature so as not to raise political concerns.

10. A considerable amount of work has already been undertaken on this topic by various Member States, Regions and international organisations. The aim of the Working Group is not to duplicate work, but rather to collate and distil this work into a set of fundamental geospatial themes which can be agreed on by all Member States.

11. It is the intention of the Working Group to ensure that agreement has priority over detail; the Group will therefore keep the work at a high level. The main aim being to arrive at a list of agreed common global fundamental geospatial data themes, likely complimented with a brief outline description for each theme.

12. The aim is to deliver the work over 18 months, culminating in a report, recommendation and draft resolution presented to the Committee of Experts at its seventh session in 2017. This present document is an interim progress report to the Committee on the work carried out by the Working Group thus far.

IV. Existing national and regional activities and initiatives on fundamental data themes

13. The report presented to the Committee of Experts at its fifth session on determination of global fundamental geospatial data themes (E/C.20/2015/4) indicated that there are already a number of existing regional examples which are considering and defining geospatial data themes. The report further expanded on a few of the examples highlighting how these national and regional examples of fundamental data theme initiatives must be the basis for developing agreement of a set of global fundamental geospatial data themes that can be harmonised to address the needs of the sustainable development agenda.

14. It is encouraging to note that all five UN-GGIM Regional Committees are currently engaged in work on global fundamental geospatial data themes. These include:

UN-GGIM: Asia-Pacific

15. UN-GGIM: Asia-Pacific has included “data themes, specifications, and metadata catalogue for regional SDI” as part of their Working Group 3: Regional SDI¹. The work is planned for the period 2015-2018, with a first draft scheduled for mid-2016.

UN-GGIM: Americas

16. As part of their Working Group on promotion and assessment of Spatial Data Infrastructure, UN-GGIM: Americas are looking into “Fundamental data sets provision” when outlining the participation of National Mapping Agencies in the development of national SDIs. Slide 25 of this presentation had details².

UN-GGIM: Arab States

17. UN-GGIM: Arab States have set up a Working Group on Fundamental Data and Geo-Standards. Slide 12 of this presentation has details on the approach this regional Working Group will pursue³.

UN-GGIM: Europe

18. UN-GGIM: Europe are undertaking work on fundamental data through Working Group A – Core Data⁴, identifying the data themes that are relevant to the region and drafting specifications for these themes.

UN-GGIM: Africa

19. The African region has been working on the topic of fundamental geospatial datasets for some time, as outlined in the 2007 report by the United Nations Economic Commission for Africa ‘*Determination of Fundamental Datasets for Africa: Geoinformation in Socio-Economic Development*’⁵. UN-GGIM: Africa has set up Work Group 2 - Fundamental Datasets to further the work.

UN-GGIM and Group on Earth Observations (GEO) Secretariats

20. Noting the common need for land cover as a fundamental data theme due to its cross-cutting importance to many areas of environmental monitoring and reporting, particularly in light of the sustainable development goals (SDGs), in November 2015 the UN-GGIM and Group on Earth Observations (GEO) Secretariats convened a side event on ‘Global land cover for policy needs: Supporting SDG monitoring and ecosystem accounting’ in Mexico City on the margins of the GEO-XII Plenary and Ministerial Summit. The side event was convened to identify and better understand a number of challenges in meeting user needs and expectations in land cover data. While standardized global classification systems have

¹ <http://www.un-ggim-ap.org/article/groups/regional/201511/20151100036720.shtml>

² http://www.un-ggim-americas.org/images/reuniones/2015_2_sesion/presentaciones/10.%20reporte%20proide.pdf

³ <http://www.un-ggim-as.org/MeetingAttachments/Third-Meeting-of-the-UNGGIM/GGIM-AS-WGs-work-plans.aspx>

⁴ <http://un-ggim-europe.org/content/wg-a-core-data>

⁵ http://www.uneca.org/sites/default/files/PublicationFiles/geoinformation_socio_economic_dev-en.pdf

been proposed for a number of years, they are either still not universally used or do not always fulfil user needs at the regional and national scale; in fact it is unlikely that a single classification system will meet the needs of all users. Other challenges include inconsistencies between land cover maps, the update frequency, efficient validation, as well as the time lag between when an image is acquired and when a map is actually available.

21. This initial land cover discussion in Mexico was followed up by a more detailed and focussed two day technical workshop on the margins of the Geospatial World Forum in Rotterdam, the Netherlands, 23-24 May 2016. Again convened by the UN-GGIM and GEO Secretariats, the purpose of the workshop was to build upon the Mexico discussion, and that different users of land cover data have different requirements for the number and type of classes, geographic scope (national, regional, global), temporal frequency, accuracy, and other respects. The workshop purpose was to explore new pathways to a sustainable operational land cover system capable of meeting varied user needs.

22. An overall vision for such a system was seen as being: 'A sustainable operational system that generates land cover datasets according to specific user requirements for geographic scope and the number and types of classes; datasets can be generated on a regular basis using consistent methods and with needed accuracy'. With approval from the 40 participants, the UN-GGIM and GEO Secretariat took the action to consolidate the workshop discussions and outcomes into a draft concept paper. This will be circulated among the participants for comment and to consider whether the concepts are appropriate for submission to a refereed journal. The November GEO-XIII Plenary in St. Petersburg, Russia was selected as an attainable milestone.

23. These national and regional activities and initiatives around the determination of fundamental geospatial data themes demonstrate how important it is for the UN-GGIM: WG Fundamental Data to take into account the existing work and also to engage in a global consultation on the topic. This is not only to avoid duplication but also in order to consider the prioritisation of the fundamental data themes, national experiences in the formulation of the data themes and linkages to other data needs within the programme of work of the Committee of Experts.

24. Work has continued on the Second Administrative Level Boundaries (SALB) project by the Secretariat. As reported at the fourth session of the Committee of Experts, the SALB project, initially developed within the context of the United Nations Geographic Information Working Group (UNGIWG), provides global seamless sub-national administrative level boundary data; and now under the responsibility of the Department of Economic and Social Affairs (DESA) and Department of Field Support (DFS), together with participation of Economic Commission for Africa (ECA)⁶ (E/C.20/2014/4/Add.1).

25. From 2014 to 2016, UN official communications have been sent out to Member States at regular intervals requesting national geospatial authorities

⁶ E/C.20/2014/4/Add.1: <http://ggim.un.org/docs/meetings/GGIM4/E-C20-2014-4%20Fundamental%20Data%20Themes%20Report.pdf>

to share their sub-national administrative level boundary data. To date, 8 countries have shared their datasets in order to contribute to the SALB project. Member States are encouraged to share their datasets, as the SALB data is a core geospatial dataset for various global operations and projects. The Secretariat is making arrangements to have a platform made available where Member States are able to submit their data directly to the Secretariat, and where interested stakeholders can access global seamless verified data sets.

26. In November 2015, on the margins of the UN-GGIM: Africa plenary meeting, a SALB regional workshop was organized by UNECA and DFS, where 22 African Member States participated. The workshop presented the objectives and current status of the SALB project, and facilitated reporting and discussion sessions among the Secretariat's of UN-GGIM and UNECA, and the Member States. The workshop was appreciated by the participating countries as they pledged their commitment in future collaborations of the project. Similar initiatives in other regions are encouraged and could also be considered in the future.

V. Progress of the Working Group

27. The Working Group on Global Fundamental Geospatial Data Themes initiated its global consultations with a workshop held on the margins of the UN-GGIM High Level Forum in Addis Ababa, Ethiopia on the 19th April 2016. The workshop was a success, attracting 35 delegates from various UN Member States, international organisations, the private sector and the UN-GGIM Secretariat. The workshop, organised by UN-GGIM: Europe, focused on presentations on the background, aims and objectives of the Working Group together with an outline of some of the existing initiatives already carried out by the different regional entities, and an overview of what is understood by fundamental geospatial data themes. The workshop then provided the opportunity for delegates to engage in feedback and discussion. Breaking out into four small groups, the delegates debated and discussed their views on the characteristics of a fundamental data theme and candidate fundamental geospatial data themes.

28. The second consultation workshop was held during the Geospatial World Forum in Rotterdam, the Netherlands on the 24th May 2016. Attendance at this work shop was lower, with participants from UN Member States, international organisations and the meteorological sector attending. With a smaller group, the discussions were more focused and intimate, providing scope to also debate the importance and need for common fundamental geospatial themes for addressing the needs of the sustainable development goals. The results, feedback and comments from the two global consultations will be collated in the work of the Working Group.

29. The Working Group on Global Fundamental Geospatial Data Themes will convene a side event on the margins of this sixth session of the Committee of Experts. The event will be an opportunity for the Working Group to report on the progress of the work, engage with the UN Member States and other stakeholders and further develop the work determining the common fundamental geospatial data themes.

30. The report presented to the Committee of Experts at its fifth session on the determination of global fundamental geospatial data themes (E/C.20/2015/4) tabulated, for the different regional initiatives, those geospatial datasets and data themes which were defined as being ‘fundamental’ by them. This initial table was updated with the input from Working Group A in Europe, which defined the core datasets for their region earlier this year. This updated table of regionally important geospatial data was provided as the basis for discussion during the global consultations, and is reproduced below in Table 1. The lists are not in any priority or importance. It is also important to note that many of the initiatives were concerned with datasets, not data themes.

31. During the global consultations, rather than present a Working Group definition of what ‘fundamental’ data is, the participants were encouraged to consider the main characteristics of a fundamental data theme. Some of the characteristics include, but are not limited to: common link between applications, required across many sectors, data others use to reference their own data, trusted source, defined, endorsed and used by all or many data users, applies to all or most regions, adds value to other data, required for many applications, not very volatile, not domain specific, enables linking of spatial and non-spatial data, maintained, and underpins other information. It is understood that not all common fundamental data themes will meet all these characteristics, however it is expected that each fundamental data theme will display many of them. This list of characteristics is not final or complete.

32. Following discussions on what constitutes a fundamental data theme, participants were asked to list those that they thought were candidates. There was a high degree of overlap with the datasets and themes identified in the existing Regional initiatives. The eight overlapping areas are shown in grey in Table 1. As can be seen from the table, different terminology and names are used across the regions, an important step for the Working Group on Global Fundamental Geospatial Data Themes will be to describe and define each data theme, to ensure that there is a common understanding.

INSPIRE (Annex I & II)	Africa Reports	ANZLIC	UNGGIM NIA
	Geodetic control network	Positioning	
<i>Geographical names</i>	<i>Geographic names</i>	<i>Place names</i>	<i>Geographical names</i>
<i>Administrative units</i>	<i>Boundaries</i>	<i>Administrative boundaries</i>	<i>Administrative units</i>
Addresses		Geocoded addressing	
<i>Cadastral parcels</i>	<i>Land Tenure</i>	<i>Land parcel and property</i>	<i>Cadastral parcels</i>
<i>Transport networks</i>	<i>Transportation</i>	<i>Transport</i>	<i>Transport networks</i>
<i>Hydrography</i>	<i>Hydrography</i>	<i>Water</i>	<i>Hydrography</i>
Area Management	Land management units/areas		
<i>Orthoimagery</i>	<i>Imagery</i>	<i>Imagery</i>	<i>Imagery</i>
<i>Elevation</i>	<i>Hypsography</i>	<i>Elevation and depth</i>	<i>Elevation</i>
<i>Land cover</i>	<i>Natural environment</i>	<i>Land cover</i>	<i>Land Cover</i>
Land Use			
Buildings			Settlements
Statistical Units			
	Utilities and services		
	Drainage		

Table 1

VI. Next steps

33. The results, feedback and comments from the two global consultations together with the feedback from the side meeting at the Committee's sixth session will be collated into the work of UNGGIM: WG Fundamental Data. Following which the Working Group will review the current first draft of candidate common geospatial data themes, and produce a second draft minimum list of themes with high level detail and description.

34. Other steps the Working Group will have to carry out before the seventh session of the Committee of Experts is to arrive at a commonly agreed high level description of each theme and to consider the prioritisation of the fundamental data themes.

35. UNGGIM: WG Fundamental Data aims to prepare a paper for the Committee of Experts with recommendations on the common set of global fundamental geospatial data themes for consideration by the Committee of Experts at its seventh session in 2017, and with the possibility of taking global agreement on these data themes forward to the General Assembly.

VII. Summary

36. At its fifth session, held in New York from 5 to 7 August 2015, the Committee of Experts considered the report on determination of global fundamental geospatial data themes (E/C.20/2015/4) presented by the Regional Committee of UN-GGIM: Europe and agreed with the recommendation that a Working Group should be established, at the global level, to draw together current projects from different UN-GGIM regional bodies to determine fundamental data themes. The Committee of Experts agreed that the Working Group be led by UN-GGIM: Europe and adopted decision 5/103.

37. UN-GGIM: Europe believes that national and regional fundamental data themes initiatives must be the basis for developing agreement to a set of global fundamental geospatial data themes. The Regional Secretariat directly contacted the executives of the other four Regional Committees of UN-GGIM seeking their participation in the global working group. UNGGIM: WG Fundamental Data was formed following a call for interest from UN Member States, observers and representatives from all Regional Committees of UN-GGIM.

38. The overall objective of the UN-GGIM: WG Fundamental Data is to bring together differing information on fundamental geospatial data themes with a view to developing an agreed minimum set of global fundamental geospatial data themes. It is expected that the Working Group will prepare a paper for the Committee of Experts with recommendations on the common global fundamental geospatial data themes, together with draft of a Resolution on Global Fundamental Geospatial Data Themes for the consideration of the Committee of Experts with the possibility of taking this to the General Assembly. The Working Group intends to present both these items at the Committee's seventh session in 2017.

39. There are a number of existing regional examples which are considering and defining geospatial data themes. These national and regional examples of fundamental data initiatives formed the basis for developing a first list of possible

fundamental data themes which were presented during global consultation workshops. Two global consultation sessions were held at two different events, the UN-GGIM High Level Forum in Addis Ababa and the Geospatial World Forum in Rotterdam. The results, feedback and comments from the two global consultations together with the feedback from the side meeting at the Committee's sixth session will be collated into the work of UNGGIM: WG Fundamental Data. Following which the Working Group will review the current first draft of candidate common geospatial data themes, and produce a second draft minimum list of themes with high level detail and description. This will be circulated to the regional working groups on fundamental data, the UN Member States and observers for their consultation, feedback and agreement.

40. The UNGGIM: WG Fundamental Data aims to finalise its work within 18 months for presentation to the Committee at its seventh session in 2017.

VIII. Points for discussion

41. The Committee is invited to:

(a) Take note of the report and express its views on the way forward in addressing the issues relating to global fundamental geospatial data themes;

(b) Note the progress made by the UNGGIM: WG Fundamental Data and to consider the work which will be carried out, culminating in a proposed list of common global geospatial data themes and a draft resolution to be presented to the Committee at its seventh session;

(c) Encourage the Regional Committees to provide to the UNGGIM: WG Fundamental Data the outputs from their regional efforts in the different regional Working Groups dedicated to the fundamental geospatial data themes, and to participate in the discussions between interested Member States and observers in order to develop agreement of a minimum set of global fundamental geospatial data themes;

(d) Note the importance of the availability of seamless global administrative level boundary data for countries, and continuing to contribute to the SALB project.