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Global Geospatial Information Management

Report of the Secretary-General

Summary:

The present report is based on a process of extensive consultation with geospatial information experts from Member States of all regions. It stresses the importance of geospatial information to address current humanitarian, peace and security, environmental as well as development challenges and suggest the need for a global mechanism to discuss critical issues on geospatial information management. It provides information on the current UN activities in the field of geospatial information, including their legislative background, as well as on major initiatives at national, regional and global levels in this field. It then addresses the urgent need for better coordination facilitated by the United Nations and makes specific recommendations on the way forward, including the creation of a UN Committee of Experts on Global Geospatial Information Management (GGIM) and the organization of High Level Fora on GGIM.

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I. Introduction

1. The rapid advances in geospatial information and related technologies, and their easy accessibility, have made this type of information an invaluable tool in research, policy and business planning and implementation. Across all sectors of society, it is increasingly recognized that the effective use of geospatial information helps address many of the current humanitarian, peace and security, environmental, and development challenges facing the world, such as climate change, natural disasters, disease pandemics, famines, population displacement, food and economic crises, which are of a cross-border nature requiring both global, regional and national policy responses.

2. Building infrastructure for the gathering, validation, compilation and dissemination of geospatial information is as important to countries as the building of roads, telecommunications networks, and the provision of other basic services. It is a critical aspect of the national, regional and global information infrastructure. However, it is increasingly recognized that the major barriers and impediments to building geospatial information infrastructures will not be technical ones, but rather institutional and organizational, including the ability to bring countries to cooperate with one another, to learn from each other, and to promote collaboration on the development of regional and global spatial data infrastructure (SDI) standards. Hence, promoting international cooperation in capacity development, institutional strengthening and knowledge transfer to countries in need is a central development challenge. Progress in the

availability and accessibility of global geospatial information will depend on how well the countries cooperate with each other.

3. There is currently no global multilateral or UN inter-governmental mechanism that can play an important leadership role in setting the agenda for the development of global geospatial information and promote its use to address key global challenges; to liaise and coordinate among member states, and between member states and international organizations active in this field; and to ultimately serve as the apex entity of the global geospatial information community. This report proposes that the United Nations takes this important lead.

4. This report has been prepared pursuant to a resolution by the Economic and Social Council adopted at its substantive session in July 2010, which requests the Secretary-General to submit to the Council in 2011 a report on global geospatial information management (GGIM). It builds on the discussion of the same topic by the UN Regional Cartographic Conference of Asia and the Pacific, the UN Regional Cartographic Conference of the Americas, the annual sessions of United Nations Statistical Commission in 2010 and 2011, the UN Group of Experts on Geographical Names and three preparatory meetings for the proposed UN Group of Experts on GGIM attended by the member states[1].

5. The report gives a general overview of the UN activities in the field of geospatial information, including their legislative background, as well as the major initiatives, at national, regional and global levels; it addresses the need for a global coordination

[1] A total of 24 countries have participated in either of the three meetings, namely Australia, Brazil, Burkina Faso, Canada, Chile, China, Colombia, Cuba, Egypt, Finland, Germany, Guatemala, India, Japan, Republic of Korea, Malaysia, Mexico, Norway, Singapore, Sweden, Tanzania, Thailand, United Kingdom, United States of America.

mechanism and makes recommendations for the way forward, including the creation of a UN Committee of Experts on GGIM and its terms of reference as well as the organization of High Level Fora on GGIM.

II. United Nations geospatial information activities

6. Since 1948, the United Nations has been promoting better understanding of cartography, geographical names and geospatial information among the member states through international cooperation and the organization of conferences, publications, training courses, and technical projects. The member states have recognized the importance of integrating geospatial information in public policy formulation, in disaster prevention and mitigation, and in establishing a sound national information infrastructure.

2.1 ECOSOC resolutions on cartography and geospatial information

7. A set of founding resolutions, adopted by the Economic and Social Council (ECOSOC), gave birth to the long established activities of the United Nations Regional Cartographic Conferences and the United Nations Group of Experts on Geographical Names. An overview of these resolutions is as follows:

- Over 63 years ago, in 1948, ECOSOC adopted resolution 131 (VI) on "Co-ordination of Cartographic Services of Specialized Agencies and International Organizations" recognizing the importance of mapping to global activities and the benefits of coordinating cartographic services of the United Nations and its member states. The

resolution highlighted the interest of several member governments in a coordinated programme of international cartography.

- ECOSOC resolutions in 1953, 1954 and 1974[2] led to the establishment of regional cartographic conferences: the United Nations Regional Cartographic Conference for Asia and the Pacific (UNRCC-AP), the United Nations Regional Cartographic Conference for the Americas (UNRCC-A), and the United Nations Regional Cartographic Conference for Africa[3].

- Subsequent resolutions of these regional conferences[4] reaffirmed the need for regional and global cooperation on geospatial information and led to the establishment of the Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP) and the Permanent Committee on Spatial Data Infrastructure for the Americas (PC-IDEA).

- In October 2009, Resolution 7 adopted by the 18th UNRCC-AP, held in Bangkok, and decision 10 adopted by the 41st session of the UN Statistical Commission, held in New York in February 2010, recognized the importance of global geospatial information management and requested the UN Secretariat to initiate discussion and prepare a report, for consideration by ECOSOC on global consultation on geospatial information management, including a decision on the possible creation of a Committee of Experts on GGIM, similar in structure to the UN Group of Experts on

[2] ECOSOC resolution 476 (XV) of 6 April 1953 on "International Co-operation on Cartography"; ECOSOC resolution 556 (XVIII) adopted on 27 July 1954; ECOSOC resolution 1839 (LVI) adopted on 15 May 1974.

[3] The UN Regional Cartographic Conference for Africa was replaced in 1999 by the Committee on Development Information (CODI) and recently by the Committee on Development Information, Science and Technology (CODIST) and its Sub-Committee on Geo-information called CODIST-Geo.

[4] Resolution no.16 adopted by the thirteenth UNRCC-AP, Beijing, 9-18 May 1994 and resolution no.3 adopted by the sixth UNRCC-A, New York, 2-6 June 1997.

Geographical Names. ECOSOC endorsed this proposal and decided to request the Secretary-General to submit to the Council at its 2011 substantive session a report on global geographic[5] information management (E/2010/240).

2.2 Regional cartographic conferences

8. The United Nations Regional Cartographic Conferences for Asia and the Pacific, (convened every three years; 18 Conferences since 1955) and for the Americas, (convened every four years; 9 Conferences since 1976) are regular conferences organized by the United Nations. These conferences constitute an important regional mechanism to exchange information among national mapping and surveying authorities and the international scientific organizations active in geospatial information. They address common and critical issues affecting the work of national mapping organizations in this area.
9. From 1963 until 1990s, nine UN regional cartographic conferences were hosted by the Economic Commission for Africa (ECA) at the UN HQ in Addis Ababa. Since 1999, the regional cartographic conference for Africa is part of the UN-ECA Committee for Development Information (CODI) and its sub-committee Geo-information, now replaced by the Committee on Development Information, Science and Technology (CODIST). CODIST-Geo meets every two years and has recently paid much effort to the development of Spatial Data Infrastructure (SDI) in Africa through the inventory of existing SDIs, the development of a metadata profile for Africa, and human capacity-

[5] During the consultation process with member states the experts recommended the use of the terminology "geospatial" information, instead of "geographic" information, because it is more comprehensive and now more commonly used.

building activities. The geospatial community in Africa has recently adopted a resolution to welcome the GGIM initiative.

2.3 Geographical names

10. Since the first meeting of experts in 1960, the UN Group of Experts on Geographical Names (UNGEGN) has worked on a world-wide basis to promote the standardization of geographical names and the associated economic and social benefits. Geographical/linguistic divisions and working groups have been established as needed to address regional and specific global issues pertaining to the technical and cultural aspects of the standardization of geographical names[i]. The United Nations Conference on the Standardization of Geographical Names, the parent body of UNGEGN is convened every five years (9 Conferences, so far, with the next Conference to be held in 2012). Among recent projects, UNGEGN through its secretariat has developed a multilingual, multiscriptual database of names of countries, capitals and major cities, available online, free of charge.

2.4 UN support to inter-governmental geospatial activities

11. The UN Department of Economic and Social Affairs, through its Statistics Division (UNSD), serves as the secretariat for the implementation of the UN resolutions on geospatial information. It promotes the strategic use of geospatial information in member states through the organization of U.N. Regional Cartographic Conferences (Asia and the Pacific, Americas), U.N. Conferences on the Standardization of Geographical Names and UNGEGN meetings. It has developed methodological

guidelines, training courses and technical assistance for the use of geospatial tools in support of census activities to developing countries.

12. The UN Cartographic Section (UNCS), Department of Field Support (DFS) is responsible for providing cartographic and geospatial information services to the UN Security Council and the UN Secretariat including all UN field missions, in support of the decision-making and operational needs, and for researching and analyzing international boundary issues in support of conflict prevention and border demarcation exercises. UNCS is maintaining primary geospatial data layers as a digital base map in global coverage and small scale (1:1 million), which includes international boundaries, sub-national administrative boundaries, coast lines, roads, railways, airports, drainages, water bodies, physical and populated places and urban areas. These are the fundamental data layers for any thematic mapping of the globe and regions as well as countries.
13. Launched in 2001, the Second Administrative Level Boundaries (SALB) project is providing the countries and international community with a working platform that covers all the member states for the collection, management, visualization and sharing of data/information down to the second administrative level. The project, developed under the leadership of WHO, has been recently handed over to the UN Secretariat and is now supported by the UNSD and UNCS.
14. In the context of the 2010 World Programme of Population and Housing Censuses, UNSD has organized a series of expert group meetings and regional and sub-regional workshops on census mapping with use of GIS and other geospatial technologies, and census data processing, analysis and dissemination. UNSD, in partnership with UNICEF and UNFPA, has developed a free-cost software package with mapping

functionalities, CensusInfo, to help countries disseminate their census data on CD-ROM and on the web.

2.5 UN specialized agencies

15. The specialized agencies, programmes and funds of the United Nations have focused on geospatial information activities related to the use of satellite imagery, location of physical infrastructures and projects, thematic mapping and other spatial distribution analysis in support of their mandates (emergency and humanitarian assistance, safety and security, poverty mapping, disease pandemics and public health, food security and agriculture, maritime, environmental, and other natural resources, etc.). Most of these agencies are members of the UN Geographic Information Working Group[6].

III. Developments in national, regional and global geospatial information

3.1 National initiatives

16. Several resolutions of the UN regional cartographic conferences[7] have stressed that developing a functioning national spatial data infrastructure (NSDI) will better facilitate the availability and access to spatial data for governmental organizations, the private sector, universities and citizens in general. The NSDI provides a base or structure of practices among data producers and users that facilitates data sharing and use, and

[6] UNGIWG is an inter-agency working group, established in March 2000 to coordinate activities and recommend guidelines and policies concerning geospatial information within the UN system. The Working Group consists of focal points from agencies throughout the system.

[7] Resolution no.14 of the fourteenth UNRCC-AP, Bangkok, 3-7 February 1997; resolution no.4 of the sixth UNRCC-A, New York, 2-6 June 1997; resolutions no.5 6 and 7 of the seventh UNRCC-A, New York, 22-26 January 2001; resolution no.1 of the sixteenth UNRCC-AP, Okinawa, Japan, 14-18 July 2003; resolutions no.1 and 2 of the eighth UNRCC-A, New York, 27 June-1 July 2005**;** and resolution no.4 of the seventeenth UNRCC-AP, Bangkok, 18-22 September 2006.

avoids costly duplication of data sets. It provides the common geospatial reference base within the country on which thematic geospatial information is built.

17. A growing number of member states are building their national spatial data infrastructures[ii] and enhancing the management of their geospatial information. There are considerable benefits to be derived from effective knowledge management at the inter-governmental level. Furthermore, many national mapping and geospatial agencies are increasingly willing to work on the international level and they have carried out exchange activities and bilateral cooperation work. It is increasingly felt that there is a need for the member states to share their experiences and to engage in discussion on both policy and technical issues on geospatial information.

3.2 Regional initiatives

18. At the regional level, cooperation on geospatial information projects is emerging as in the case of the geocentric reference system for the Americas (SIRGAS), a unique reference frame that has been established for the American continent. Asia Pacific has been carrying out the same geodetic reference work for the region (Asia Pacific Regional Geodetic Project) and developing the Asia Pacific Spatial Data Infrastructure (APSDI) Clearinghouse Portal. The African Geodetic Reference Frame (AFREF) project has been recently set up to create a unified geodetic reference frame for Africa[iii]. In Europe EUREF[iv] - a sub-commission of the International Association of Geodesy- is responsible for the maintenance of the European Reference Frame (ETRS89).

19. In Europe, significant steps have been taken to establish and develop a comprehensive spatial data infrastructure- called the Infrastructure for Spatial Information in Europe

(INSPIRE). This directive[v], which entered into force in 2007, aims to make geospatial information more readily available for policy making across the European community. INSPIRE is based on the infrastructures for spatial information established and operated by the Member States of the European Union. It addresses 34 spatial data themes needed for environmental applications, with key components specified through technical implementing rules. This makes INSPIRE a unique example of a legislated "regional" approach, which is promoted by the European Commission and also by many European organizations such as EUROGI[vi].

20. The Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP)[vii], the Permanent Committee for Geospatial Data Infrastructure of the Americas (PC-IDEA) [viii], the Committee on Development Information, Science and Technology (CODIST) for Africa [ix], and EuroGeographics which is an organization of European national mapping, land registry and cadastral agencies[x], are inter-governmental bodies that have been established to coordinate geospatial information activities in the countries of their respective regions..

3.3 Global initiatives

21. The use of geospatial information is becoming a major thrust of initiatives within the global community. There are already several programs underway for implementing transnational geospatial data infrastructures, by governments, or driven by military or commercial interests, which aim to improve quality of observations and interpretation, manage large quantities of global data, and communicate the results of global change research to the international community. Below are examples of some major initiatives.

Global Spatial Data Infrastructure (GSDI)

22. The Global Spatial Data Infrastructure Association (GSDI) [xi] is a non-profit organization comprising agencies, firms, and individuals from around the world. The purpose of the organization is to promote international cooperation and collaboration in support of local, national and international spatial data infrastructure developments that will allow nations to better address social, economic, and environmental issues of pressing importance.

Global Earth Observation System of Systems (GEOSS)

23. The Group on Earth Observations (GEO) is coordinating international efforts to build a Global Earth Observation System of Systems (GEOSS). This emerging public infrastructure is interconnecting a diverse and growing array of instruments and systems for monitoring and forecasting changes in the global environment. This "system of systems" supports policymakers, resource managers, science researchers and many other experts and decision-makers. Currently, 80 countries are members of this organization.

Global Map

24. Global Mapping Project[xii] is an international cooperation initiative, launched in 1996, through voluntary participation of national mapping organizations in the world, and led by the International Steering Committee for Global Mapping (ISCGM) and its Secretariat, the Geospatial Information Authority of Japan (GSI). Global Map aims to develop digital geo-information framework datasets ensuring spatial resolution at 1 km

(scale of 1:1 million), with standardized specifications and available to everyone at marginal cost. Global Map datasets consist of 8 basic layers (Boundaries, Drainage, Transportation, Population Centers, Elevation, Land Cover, Land Use, and Vegetation). Currently, 181 countries and regions including Antarctica are participating in the project. Datasets for 71 countries and 4 regions have been released, covering 60% of the whole land area, and those for another 64 countries are being validated for future release.

Multinational Geospatial Co-Production Program

25. Since its inception in November 2003, the Multinational Geospatial Co-Production Program (MGCP) has been working toward developing international cooperative production and coordination of digital vector data (scale of 1:50,000) based on high-resolution satellite imagery in high-interest regions where there are inadequate data. At present, 28 nations are participating in the project[xiii]. All MGCP data co-producers are populating the dataset at International Geospatial Warehouse (IGW), which is established and maintained by the United States National Geospatial-Intelligence Agency (NGA), for storage, exchange and use of geospatial information. The project is scheduled through December 31, 2011.

Other professional initiatives

26. The Cambridge Conference[xiv], organized by the UK Ordnance Survey, is held every four years with an interim meeting, the Cambridge Conference Exchange, held in the intervening period. It brings together the Chief Executives of national mapping agencies from across the world to discuss ideas and share experiences.

27. The Joint Board of Geospatial Information Societies (JB GIS) is a coalition of leading international geospatial societies[xv] set up to speak on behalf of the geospatial profession at international level, especially to the United Nations and other global stakeholders. The JB GIS is a co-operation network with no obligations to the membership and no membership fees[xvi].

28. International standards for exchanging geospatial & temporal data have been in development since early 1990s, mainly through the work of International Organization for Standardization Technical Committee (ISO/TC) 211 on Geographic information/Geomatics, the Open Geospatial Consortium[xvii] (OGC) and the Unicode Consortium. While ISO/TC-211 produces ISO International Standards for Geographic information/Geomatics through a country-driven balloting process, the OGC is an international industry consortium of over 423 companies, government agencies and universities developing and establishing common interfaces that "geo-enable" the Web and mainstream information technology (IT). Their work can be seen as complementary in the sense that ISO/ TC-211 standards form the foundation and OGC specifications implement the standards.

IV. Global mechanism on GGIM

4.1 Need for a global consultation mechanism

29. At present, the following gaps in the management of geospatial information globally have been identified:

30. Firstly, a lack of UN inter-governmental processes that could deal with global geospatial information and work with member states for setting global norms on geospatial information, to develop common tools and to bring geospatial information to bear on global policy issues. Among the expert community of member states, there is a general recognition of the need for a global mechanism, a UN multilateral consultative process to effectively coordinate ongoing work in the wide field of geospatial information. Without such a global coordinating mechanism, the risk of further fragmentation is very high. This would greatly hamper the development of national spatial data infrastructure and the coordinated use of global geospatial information.

31. Secondly, current UN activities have supported the member states in cartography, the standardization of geographical names and the deployment of GIS technology. These are important work programmes and they are very well supported by the member states. However, there are many more components of a geospatial information infrastructure which the UN could facilitate such as demographic, health, environmental, topographic, cadastral and economic information. This was recognised as early as 1948 when the UN resolution asked for a coordinated programme of international cartography and recognized the importance of maps to global activities[8].

32. Thirdly, the various national, regional and global initiatives show that expanding the traditional role of cartography and aligning it with the management of geospatial information and spatial data infrastructure is much needed to cater to an extended base of users of information, who require more than just maps but rather location-based applications and services. Global issues such as climate change, natural disaster, food

[8] See ECOSOC resolution 131 (VI) of 19 February 1948 on "Co-ordination of Cartographic Services of Specialized Agencies and International Organizations". This resolution has also been referred to in paragraph 7.

and epidemic crisis, peace and security, and humanitarian assistance all require strong support for geospatial information on a global scale.

33. Establishing a formal framework would enable member states to develop effective strategies on how to build and strengthen capacity for the management of geospatial information, especially in developing countries, and help address the global challenges that are facing the current world, which are interconnected, interdependent, and quintessentially geospatial with cross-border and global impacts. The successful response in addressing these global challenges in the years to come, such as natural disasters or pandemics, will depend largely on the quality of the geospatial information available to users, and the ways to manage and share essential data in a timely manner.

34. Such a global mechanism, under the auspices of the United Nations, could furthermore raise awareness of politicians and decision-makers of the scope and significance of geospatial (or "location-based") information, its powerful analytical potential when effectively integrated with statistical and other information systems, and ultimately that location-based information is critically important for sustainable socio-economic development.

4.2 The Committee of Experts on GGIM

35. Based on the views expressed during extensive consultations among Member States at various informal expert meetings[xviii], it is proposed that a Committee of Experts be established similar to that of the already mandated UN Group of Experts on Geographical Names. The Expert Committee would meet annually and be charged with

the identification and coordination of specific areas of work and the preparation of policy papers for consultation among member states.

36. The UN Committee of Experts would perform the following functions:

(a) It would provide an inter-governmental forum for discussion on GGIM issues, wider than is currently offered by the UN Regional Cartographic Conferences (held regionally in Asia and the Pacific, Africa, and the Americas).

(b) It would bring the regional perspectives together and help evolve a global community of practice.

(c) It would help enhance institutional integration of geospatial information with other types of information such as statistical information or humanitarian assistance information.

(d) Its dialogue with the UN Statistical Commission, the Population Commission and other specialized inter-governmental bodies would help create a common information base.

37. The draft Terms of Reference of the proposed Committee are provided in the annex.

38. In conjunction with the work of the UN Committee of Experts, it is proposed that High Level Fora on Global Geospatial Information Management be organized from time to time to provide an opportunity for in-depth discussion and consultation with governments, non-government organizations and the private sector. Such Global Fora could bring all member states and stakeholders together and address current critical

issues and exchange information, in particular for sharing best practices in legal and policy instruments, institutional management models, technical solutions and standards, the interoperability of systems and data and the sharing of mechanisms that guarantee that geospatial information and services are accessible easily and in a timely manner. Some member states have expressed their interest and willingness to host such a global Forum[9].

V. Conclusions/Recommendations

39. Many member states are using geospatial information as an important element in national policy formulation, but, despite the progress made by most developed countries in this area, many developing countries are still experiencing a serious lack of institutional capacity to harness the enormous potential of geospatial information technologies and to build a sustainable national infrastructure. This is combined with a lack of effective cooperation among countries.

40. Regional efforts, like those of the European Union to create the Infrastructure for Spatial Information in Europe (INSPIRE) directive, and those of the Permanent Committees for Geospatial Data Infrastructure of the Americas (PC-IDEA) and on GIS Infrastructure for Asia and the Pacific (PCGIAP) to create regional spatial data infrastructures, are an indication of the value of such cooperation. Increased international cooperation in this field could help to develop the full potential of

[9] The Republic of Korea has expressed its commitment to host the first such High Level Forum on Global Geospatial Information Management in Seoul, 24-26 October 2011.

geospatial information and the underlying technologies and make them more useful and accessible to a wide range of users and policy makers.

41. In response to the rapid rise in the availability and access to geospatial information and the need for such information in humanitarian responses and disaster relief operations, the member states have come to the realization that a global consultation mechanism is required to address critical management issues concerning geospatial information in a comprehensive manner. Such a global inter-governmental mechanism would serve as the apex entity of the global geospatial information community to provide global coordination and support.

42. The member states and international professional bodies have widely supported the idea of establishing a UN Committee of Experts on Global Geospatial Information Management (UNCEGGIM)[10]. The United Nations Regional Cartographic Conference for Asia and the Pacific, explicitly recognized the absence of a United Nations consultation process which is led by member states that deals with global geospatial information management, and the request of member states for a global mechanism - the work to develop common frameworks and tools and a process of standardization, for which the United Nations has a key mandate.

43. The Council may wish to consider the following recommendations to address the gaps in global cooperation on geospatial information management and sharing:

[10] The organization of the sessions of the Committee of experts will be organized within existing resources and following standard UN practice. This means that expenses of the participating experts will need to be borne by their own offices and the meetings will be conducted with limited conference servicing support. Meanwhile, UNSD/DESA will undertake efforts to create a Trust Fund to support the work of the Committee and facilitate participation of experts from developing countries.

1. **take note of the Secretary-General report on "Global Geospatial Information Management" and the urgent need to take concrete actions to foster and strengthen global cooperation in the area of geospatial information management, particularly through the United Nations;**

2. **encourage stronger engagement by member states, both at technical and policy levels, through the establishment of a global mechanism to address issues of the management and sharing of global geospatial information;**

3. **decide to establish the United Nations Committee of Experts on Global Geospatial Information Management to perform the functions listed in the annexure to this report;**

4. **recognize the need to hold high level discussions through global Fora from time to time.**

5. **encourage stronger efforts to be made at national, regional, and global levels by member states and international organizations for facilitating the transfer of knowledge and expertise to develop capacity of the developing countries in this field.**

Annex: United Nations Committee of Experts on Global Geospatial Information Management

Terms of Reference

The proposed terms of reference of the Committee of Experts on Global Geospatial Information Management include the basic aims of the Committee, its membership and composition, term of office of members, reporting procedures, frequency of meetings, secretariat, meeting documentation and resource requirements.

The basic aims of the Committee of Experts are:

(i) Playing a leadership role in setting the agenda for the management of global geospatial information and promoting its development to address key global challenges (poverty reduction, sustainable development, climate change, early warning, disaster management, peace and security, environmental quality, energy and infrastructures, economic crises, etc.);

(ii) Providing a vehicle for liaison and coordination among Member States, and between Member States and international organizations, including the United Nations Regional Cartographic Conferences and their regional Permanent Committees on Spatial Data Infrastructures, on work associated with the management of global geospatial information

and to demonstrate the benefits to be derived from this coordination;

(iii) Proposing work plans to define actions to guide the development of principles, policies, methods and mechanisms for standardization, interoperability and sharing of geospatial data and services, and to help countries develop the full potential of the geospatial information and the underlying technology and to make it accessible to and effectively used by a broad range of users;

(iv) Compiling and disseminating best practices of national, regional and international bodies dealing with legal instruments, management models and technical standards for the building of spatial data infrastructures- as one of the vital elements of information management, and facilitating the dissemination of these practices and experiences to Member States of the United Nations;

(v) Providing a platform to develop effective strategies on how to build and strengthen capacity for the management of geospatial information, especially in developing countries;

(vi) Supporting the organization of High Level Fora on Global Geospatial Information Management by developing their agenda and facilitating their arrangements;

(vii) Following-up on the proposals emanating from the discussions at the High Level Fora on Global Geospatial Information Management.

Membership, composition and term of office

The Committee comprises experts from all Member States with experts from international organizations as observers. The membership will be drawn from the interrelated fields of surveying, geography, cartography and mapping, remote sensing, land/sea and geographic information systems, and environmental protection, in order to avoid the need to engage the assistance of consultants and so as to reflect an adequate geographical and gender balance. The Committee will elect two co-chairs during each session from its membership. The Committee could also establish, as and when needed, informal working groups or sub-committees to deal with specific issues related to its work programme.

Reporting procedure

The Committee of Experts will report to the Economic and Social Council.

Frequency of meetings

The Committee of Experts will meet annually. In years when a High Level Forum on Global Geospatial Information Management is held, it may meet on dates immediately preceding the opening date of the Forum and/or immediately following the closing date of the Forum.

Secretariat

The Committee will be supported by UN Statistics Division of the Department of Economic and Social Affairs and the Cartographic Section of the Department of Field Support.

Meeting documentation

Documentation for the meeting includes the agenda, the previous report of the Committee, thematic notes prepared by working groups or sub-committees, notes by the Secretariat and other relevant documentation of external experts or expert groups.

Resource requirements

This activity will be carried out within existing resources, with no budget implication.

[i] Interestingly, in the process of UNGEGN's establishment, it was from the First UNRCC-AP in 1955 that a resolution was developed through the agenda item "Adoption of a standard method of writing geographical names on maps". At the ECOSOC meeting of 1959, resolution 715A(XXVII) then became the foundation stone of all the work carried out by UNGEGN and by the subsequent UN Conferences on the Standardization of Geographical Names.

[ii] For example, the Australian Spatial Data Infrastructure (ASDI), the Brazilian National Spatial Data Infrastructure (INDE), the Canadian Geospatial Data Infrastructure (CGDI), the Chilean National Spatial Data Infrastructure (SNIT), and the US National Spatial Data Infrastructure (NSDI), just to name a few.

[iii] "The African Geodetic Reference Frame (AFREF) was conceived as a unified geodetic reference frame for Africa to be the fundamental basis for the national and regional three-dimensional reference networks fully consistent and homogeneous with the International Terrestrial Reference Frame (ITRF). For more details: http://geoinfo.uneca.org/afref/.

[iv] EUREF is the IAG Reference Frame Sub-Commission for Europe, integrated in the Sub-Commission 1.3, Regional Reference Frames, under Commission 1 – Reference Frames, following the implementation of the new IAG structure at the IUGG (International Union of Geodesy and Geophysics) General Assembly held in Sapporo, 2003.

[v] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. The INSPIRE Directive entered into force on the 15th May 2007 to ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and trans-boundary context. For more details: http://inspire.jrc.ec.europa.eu/.

[vi] EUROGI had about 20 member countries. Its objectives were to encourage the greater use of geospatial information (GI) in Europe, to raise awareness of the value of GI and its associated technologies, to work towards the development of strong national GI associations in all European countries, to facilitate the development of a European Spatial Data Infrastructure, and to represent European interests in the Global Spatial Data Infrastructure. For more details: http://www.eurogi.org/ .

[vii] The Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP) operated under and reported to the UN Regional Cartographic Conference for Asia and the Pacific. Its membership consisted of 55 nations in the region. Its objective was to provide a forum for nations in the region to cooperate in the development of the Asia Pacific Spatial Data Infrastructure (APSDI). For more details: http://www.pcgiap.org/.

[viii] The Permanent Committee for Geospatial Data Infrastructure of the Americas (PC-IDEA) had 21 member nations and four working groups. Its main objective is to act as an inter-American forum for better understanding of national and regional needs, and to place geo-information production as a strategic sector within national development strategies. For more details: http://www.cp-idea.org/.

[ix] "The Committee on Development Information, Science and Technology (CODIST) is one of the seven subsidiary bodies of the Economic Commission for Africa (ECA) composed of senior officials and experts from member States who meet on a biennial basis. The role of CODIST is to review challenges and issues pertaining to the information and communications technology (ICT), geo-information, science and technology sectors; formulate policies and strategies to address Africa's development challenges; and determine priorities to be reflected in the work programme of the ICT, Science and Technology Division of ECA". (http://www.uneca.org/codi/codist1/content/E-ECA-CODIST-1-INF-6-EN.pdf).

[x] EuroGeographics is an association formed in 2001 as the membership association and representative body of the European national mapping, land registry and cadastral agencies. It brings together 56 organizations from 44 countries across Europe and aims to further the development of the European Spatial Data Infrastructure through collaboration in the area of geospatial information, including topographic information, cadastre and land information. More details are provided on its website: http://www.eurogeographics.org/.

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[xi] The Global Spatial Data Infrastructure Association (GSDI) is an inclusive organization of organizations, agencies, firms, and individuals from around the world, dedicated to international cooperation and collaboration in support of local, national and international spatial data infrastructure developments that would allow nations to better address social, economic, and environmental issues of pressing importance. The mission of the GSDI Association is to serve, inter alia, as a point of contact and effective voice for those in the global community involved in developing, implementing and advancing spatial data infrastructure concepts.. More details are provided by its website: http://gsdi.org.

[xii] The Global Mapping Project is an existing initiative for global geospatial information management. It has achieved some solid results such as the release of Global Map Version 1 including Global Land Cover and Percent Tree Cover data in 2008 and technology transfer to the developing countries concerning the development of SDI. In 2009 Global Map Specifications Version 2 was adopted which reflected the opinions of participating countries to the project, and by 2012 Global Map Version 2 will be developed. Global Map Specifications are compliant with international standards including those of ISO/TC211 and the World Geodetic System. In addition, "administrative boundaries" feature has administrative code and SALB code as its attribute. For more details: http://www.iscgm.org/cgi-bin/fswiki/wiki.cgi..

[xiii] The 28 nations taking part in the Program are: Australia, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Moldova, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Turkey, United Kingdom and United States.

[xiv] Cambridge Conference, the international meeting of chief executives from national mapping organizations around the world, originated from a more modest meeting in the summer of 1928, when some leading surveyors were heading to Cambridge for the International Geographic Congress. The 1928 conference proved such a success, with many friendships forged, that it was repeated three years later. Since then, it has been organized at quadrennial intervals. By 1995, the decision was taken to extend the Commonwealth meeting into a new Cambridge Conference - a global event for all national mapping organizations - always in Cambridge. It is now a modern inclusive event, keeping the traditional emphasis on opportunity for discussion, both formal and informal. http://www.cambridgeconference.com/

[xv] The major professional organizations who attended the UN preparatory meetings on GGIM are the International Cartographic Association (ICA), the International Federation of Surveyors (FIG), the International Society of Photogrammetry and Remote Sensing (ISPRS), the International Association of Geodesy (IAG), the International Geographic Union (IGU), and the International Hydrographic Organization (IHO). These non-profit professional organizations expressed their interest and willingness to assist countries and noted that a number of them have the potential to do this, since some already have working groups dealing with capacity building and training issues.

[xvi] The current members of the JB-GIS are the Global Spatial Data Infrastructure (GSDI) Association, IEEE Geoscience and Remote Sensing Society (IEEE-GRSS), the International Association of Geodesy (IAG), the International Cartographic Association (ICA), the International Federation of Surveyors (FIG), International Geographic Union (IGU), the International Hydrographic Organization (IHO), the International Map Trade Association (IMTA), the International Society of Photogrammetry and Remote Sensing (ISPRS) and the International Steering Committee for Global Map (ISCGM).

[xvii] The Open Geospatial Consortium (OGC) is an international industry consortium of 423 companies, government agencies and universities participating in a consensus process to develop publicly available interface standards. OGC® Standards support interoperable solutions that "geo-enable" the Web, wireless and location-based services and mainstream IT. The standards empower technology developers to make complex spatial information and services accessible and useful with all kinds of applications.

[xviii] UNSD, in collaboration with UNCS, has organized three preparatory meetings of the proposed UN Committee of Experts on the Global Geospatial Information Management (UNCEGGIM) to consult with the member states on the mandate and terms of reference on this Committee of Experts, and the desirability to hold High Level Fora on Global Geospatial Information Management (see http://ggim.un.org/).