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# Economic and Social Council

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## Committee of Experts on Global Geospatial Information Management

### Ninth session

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Item 14 of the provisional agenda\*

### National institutional arrangements in global geospatial information management

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### Note by the Secretariat

#### Summary

The present paper contains the report of the Working Group on Trends in National Institutional Arrangements for consideration by the Committee of Experts on Global Geospatial Information Management.

At its eighth session, held in New York from 1 to 3 August 2018, the Committee of Experts adopted decision 8/105, in which it noted that the workplan of the Working Group for the period 2018–2019 contained one major task and noted that the Working Group was seeking to refocus and realign its current activity of work with the requirements of Member States regarding national institutional arrangements. The Committee requested that the Working Group coordinate and integrate into its workplan the broader activities of the Committee, including with regard to the Integrated Geospatial Information Framework and the compendium on the licensing of geospatial information. In this present report, the Working Group provides an update on its activities and progress, including the development of a resource entitled “Foundational Guide to National Institutional Arrangements for Geospatial Information Management”. It also provides information on its efforts to document implementation steps, known practices and recommendations of national institutional arrangements, including with regard to a self-assessment framework to monitor the adoption of instruments, principles and guidelines. In addition, the Working Group describes its efforts to coordinate the organization of its work with the Bureau of the Committee of Experts and provides an overview of its intended activities for the coming year and their alignment with the Integrated Geospatial Information Framework.

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\* E/C.20/2020/1

## I. Introduction

1. At its third session in July 2013, the Committee of Experts recognized the global importance of national institutional arrangements and the need to provide guidance and options for Member States to create robust national geospatial information management institutional structures.

2. In 2017, with consultancy support and input from its members, the Working Group developed a high-level framework for implementing national institutional arrangements in geospatial information management for Member States. This framework ‘National Institutional Arrangements: Instruments, Principles and Guidelines’ provides an integrated process for implementing national institutional arrangements. The framework is based on: (a) seven structural and six managerial instruments that are specific activities or structures for delivering these institutional arrangements; (b) 14 principles which are the fundamental beliefs framing and structuring these instruments; and (c) the guidelines that provide directions for implementation of the instruments. The framework is supported by a compendium of 61 good practices that demonstrates how different instruments have been applied within and across Member States in all regions. The instruments are as shown in the table that follows.

Structural	Managerial
S1. Establishment of coordinating functions or entities	M1. Strategic planning
S2. Reshuffling division of competences	M2. Financial management: input-oriented
S3. Establishment of a legal framework	M3. Financial management: performance-oriented
S4. Regulated markets	M4. Financial management: joined up working and cooperation
S5. Systems for information exchange and sharing	M5. Inter-organizational culture and knowledge management
S6. Entities for collective decision-making	
S7. Partnerships	

3. The Committee of Experts adopted the framework (decision 7/105) at its seventh session in August 2017 and commended the Working Group on the preparation of the compendium of good practices as a tangible means of demonstrating models of institutional arrangements across geographic regions. The Committee encouraged Member States to contribute additional good practices to strengthen the compendium.

4. At its eighth session in August 2018, the Committee of Experts adopted decision 8/105, noting the Working Group's revised work plan for the period 2018-2019, which had been refocused and refined according to the requirements of Member States regarding national institutional arrangements; as well as the major task of preparing an easy-to-understand guide that would elaborate on each of the principles and instruments in the context of geospatial information management.

5. The Committee also noted the Working Group's plans to include within its work plan the broader activities of the Committee of Experts, including with regard to the Integrated Geospatial Information Framework.

6. In this respect, in the intersessional period the Working Group has developed the 'Foundational Guide to National Institutional Arrangements for Geospatial Information Management' as a tangible means to build upon and facilitate the use of the framework's principles and instruments, focusing on specific geospatial information management contexts such as geographic regions.

7. In this report, the Working Group updates the Committee of Experts on the efforts taken to build upon and facilitate the use of the framework's principles and instruments, focusing on specific geospatial information management contexts to develop the 'Foundational Guide to National Institutional Arrangements (NIA) Instruments for Geospatial Information Management (Asia-Pacific)', focused on the Asia-Pacific region. The Committee is invited to take note of the report and the Foundational Guide provided as a background document to this present report. Points for discussion and decision are provided in paragraph 18.

## **II. The Foundational Guide to National Institutional Arrangements Instruments for Geospatial Information Management**

8. Based on the overarching framework for national institutional arrangements, the Working Group developed a 'Foundational Guide to National Institutional Arrangements (NIA) Instruments for Geospatial Information Management (Asia-Pacific)', to facilitate the use of NIA principles and instruments by Member States that may not have comprehensive experiences or complete understanding of geospatial information management concepts. The Guide consists of recommendations for implementing the NIA instruments, and a self-assessment framework that could be used to inform and monitor the adoption of the recommendations. They are presented and detailed in the background document to this present report.

9. The Foundational Guide is organized into the following three main parts:

(a) **Introduction** is an overview of the NIA instruments and principles.

(b) **Self-assessment framework** consists of a checklist and a roadmap.

i. Self-assessment checklist. This is an assessment tool to help Member States determine the status and level of adoption of the NIA instruments.

ii. Roadmap of institutional design. This helps Member States decide on the implementation approach towards the NIA instruments by

considering them in combination and connection with one another. This builds upon the ‘proposed roadmap of institutional design for geospatial information management’, which was endorsed at the seventh session of the Committee of Experts.

- (c) **Guide to NIA instruments in the Asia-Pacific Region.** This proposes implementation steps and guidelines supported by known practices from the **Asia-Pacific** region, for each instrument.

10. Online meetings of the Working Group were held in November 2018 to discuss the approach towards the Foundational Guide’s development. The ‘geographic region’ was identified to be the most suitable, objective, and neutral geospatial information management context within which to develop the Foundational Guide. A geographic region forms the most basic, logical categorization unit of Member States, and is widely-accepted by the Committee of Experts in its organization of activities, such as its Regional Committees. In addition, a geographic regional approach is reflected in existing NIA programmes, such as Europe’s INSPIRE Directive, and the Working Groups of NIA in the UN-GGIM Regional Committees of Africa and the Arab States. Other approaches, such as Member States’ maturity level of geospatial information management and level of socio-economic development, were also considered. Though these approaches may be more subjective, they can be explored in future stages.

11. The development of the Foundational Guide was a research-based effort by the Working Group from 2018 to 2019. This involved gathering known practices of NIA instruments from online sources and other literature, such as the ‘Compendium of Good Practices for National Institutional Arrangements’ that was endorsed at the seventh session of the Committee of Experts. The known practices were then generalized into implementation steps and guidelines. The Foundational Guide being presented is based initially on the Asia-Pacific region. This is due to limitations in resources that could be committed, and the need for broader participation by Member States to work towards documentation of the other regions. The Foundational Guide can be developed further in future stages based on other geographic regions, such as Africa, the Americas, Arab States and Europe. Working Group members, including Australia and Japan, contributed documentation from their respective Member States and/or sub-regions. Singapore, as the Chair of the Working Group, led and coordinated the documentation effort.

### **III. Alignment of the NIA Foundational Guide with the Integrated Geospatial Information Framework**

12. To implement decision 8/105 of the Committee of Experts, which requested the Working Group to coordinate and integrate into its workplan the broader activities of the Committee of Experts including the Integrated Geospatial Information Framework (IGIF), the Working Group, in consultation with the Expanded Bureau of the Committee of Experts and the Secretariat, have initiated the alignment of the Foundational Guide with the IGIF.

13. The UN-GGIM Expanded Bureau Meeting, held in Amsterdam, the Netherlands on 1 April 2019, noted that the Foundational Guide has the ability to be aligned with the IGIF on two levels: the first being the approach toward the NIA instruments’ recommended implementation steps and the corresponding self-

assessment checklist; and the second being the terminology used in these components of the Foundational Guide. Specifically, the IGIF's Strategic Pathway 1: Governance and Institutions, as documented in the 'Implementation Guide of the Integrated Geospatial Information Framework [Consultation draft: Work-in-progress]' and presented to the eighth session of UN-GGIM, was used as a reference for the alignment, being the most pertinent and well-developed strategic pathway of the IGIF.

14. Subsequently, online meetings of the Working Group were held in June 2019 to review how the Working Group could help enhance the IGIF's Implementation Guide. The Working Group established that the IGIF formed an overarching framework to which the Foundational Guide could contribute more detailed content. In particular, the NIA Foundational Guide's implementation steps and guidelines could be incorporated directly into the major actions of the IGIF's strategic pathways where relevant. By way of an example, the Foundational Guide's proposed guidelines for the composition of a steering committee could enrich recommendations to appoint a steering committee in the Strategic Pathway 1: Governance and Institutions chapter of the IGIF's Implementation Guide. Known practices from the Foundational Guide could be attached as supporting examples in the form of appendices. Two examples of suggested alignment between the Foundational Guide and the IGIF Implementation Guide are demonstrated in Annex I attached to this present report.

15. During the fourth expert consultation and meeting on the development of the Implementation Guide of the IGIF, held in Kuala Lumpur, Malaysia, from 18 to 21 June 2019, the Working Group Chair and UN-GGIM Secretariat agreed on the proposed approach toward aligning and integrating the Foundational Guide with the IGIF. The views of the IGIF reference group were also sought. Further, with the ongoing development of the IGIF's Implementation Guide, common terminology used in the Foundational Guide and IGIF are able to be harmonized where possible.

#### **IV. Next Steps**

16. For future development of the Foundational Guide, the Working Group will seek to create recommendations for other geographic regions, such as Africa, the Americas, Arab States and Europe, based on the approach taken for the Asia-Pacific region. Active engagement and participation of Member States is needed in these efforts, particularly from Africa and the Arab States. Further assistance from the UN-GGIM Regional Committees to seek contribution and support from their Member States is additionally required. Other contexts for the refinement of the recommendations, such as Member States' maturity level of geospatial information management and level of socio-economic development, can be considered as well. Continued alignment and integration between the Foundational Guide and the IGIF will also be considered as part of the Working Group's future efforts.

17. Contribution and direction will be sought from the Committee of Expert's Expanded Bureau, and relevant expert and working groups. A meeting of the Working Group will be convened on 8 August 2019 on the margins of this ninth session of the Committee of Experts, at which time the 'Foundational Guide to National Institutional Arrangements (NIA) Instruments for Geospatial Information Management (Asia-Pacific)' will be presented for consideration.

## **V. Points for Discussion**

**18. The Committee is invited to:**

- a) Take note of the report and the work carried out by the Working Group in developing the ‘Foundational Guide to National Institutional Arrangement Instruments for Geospatial Information Management (Asia-Pacific)’, provided as a background document to this present report;**
- b) Express its views on the Working Group’s efforts in aligning and integrating the Guide with the Integrated Geospatial Information Framework and supporting the preparation of the Implementation Guide; and**
- c) Provide guidance on the ‘Foundational Guide to National Institutional Arrangement Instruments for Geospatial Information Management (Asia-Pacific)’ and considerations for capturing other geographic regions in a similar manner.**

## ANNEX I

### EXAMPLES OF SUGGESTED ALIGNMENT

#### **1<sup>st</sup> example of possible alignment and integration between NIA Foundational Guide and IGIF's Implementation Guide (extract from the chapter for Strategic Pathway 1: Governance & Institutions)**

A Steering Committee will provide the leadership and direction for implementing the Integrated Geospatial Information Framework.

#### 1.6.1 Appoint a Steering Committee

A Steering Committee (or equivalent governing body) is typically established to provide the necessary leadership and direction for implementing the Integrated Geospatial Information Framework.

Antecedent structures such as specialised functional committees or task forces may have been developed for GIS management or the use of geospatial information for specific domains. These structures may form ready bases for establishing the Steering Committee<sup>1</sup>.

The Steering Committee is generally made up of members from across government. This structure recognizes that organizations, which collect, manage and are significant users of geospatial information, and have a significant role to play in strengthening geospatial information management.

The Steering Committee Chair acts as the spokesperson of the committee and ensures that an appropriate level of dialogue occurs between institutions. The Chair may be a senior official within the Cabinet or Ministry overseeing the geospatial information management strategy and policy, who can drive mandate and decision-making. In several cases, a Co-chair may be appointed and he/she may be a senior official in the geospatial, mapping or survey agency, who is able to contribute geospatial-related expertise and experience to aid decision-making<sup>2</sup>.

Examples of Steering Committees are provided in Appendix: Examples.

The Steering Committee requires a Terms of Reference, roles and responsibilities and code of conduct.

A Steering Committee Charter for Geospatial Information Management is used to define the Committee's mission, authority and responsibilities, composition, how and when meetings will be held, communicating meeting details and

Red text reflects content from the NIA Foundational Guide

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<sup>1</sup> UN-GGIM NIA-WG. 2019. Foundational Guide to NIA Instruments for Geospatial Information Management, p. 16.

<sup>2</sup> Ibid.

## Appendix: Examples

### Steering Committees<sup>6</sup>

Japan: Following the Article 10 of NSDI act, or the Basic Act on the Advancement of Utilizing Geospatial Information (AUGI), the government developed the cooperation system among relevant administrative organs. The Deputy Chief Cabinet Secretariat serves as the chair of the committee for AUGI, and the Cabinet Secretariat serves as the secretariat of the AUGI office. Director-Generals of related ministries and agencies are the members. The NSDI act defines the responsibilities of the governments and recommendations toward the private sector.

Malaysia: The NaLIS Coordinating Committee was formed to steer the production and use of critical land information through NaLIS for planning and development of land resources, with the Department of Survey and Mapping Malaysia as the secretariat. Subsequently, the MyGDI National Coordinating Committee replaced the NaLIS Coordinating Committee, with MaCGDI as the secretariat and its reporting ministry, the Ministry of Natural Resources and Environment as the chair. It specified principles and guidelines for the development of MyGDI, coordinated and monitored its implementation as well as requirements for financial, manpower and technological resources.

Philippines: The IATFGI (Inter-agency Task Force on Geographic Information), led by the National Mapping and Resource Information Authority (NAMRIA), was set up to promote and coordinate geographic information development and use by Memorandum Order in 1993. It reviewed policies and directions for GIS management and projects, as well as coordinated activities of agencies involved in geographic information. As part of the PGDI Master Plan, the PGDI Steering Committee was set up to provide executive leadership for the coordination of activities among agencies, with the NAMRIA as the technical and administrative secretariat and its reporting ministry, the Department of Environment and Natural Resources as its chair.

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<sup>6</sup> UN-GGIM NIA-WG. 2019. Foundational Guide to NIA Instruments for Geospatial Information Management (Asia-Pacific), p. 17.



## 2<sup>nd</sup> example of alignment and integration between NIA Foundational Guide and IGIF's Implementation Guide (extract from the chapter for Strategic Pathway 1: Governance & Institutions)

The geospatial information strategy identifies the vision, mission, goals and objectives of the geospatial information management initiative.

### 1.6.5 Develop a Geospatial Information Management Strategy

The geospatial information strategy is an important first step towards identifying the vision, mission, goals and objectives of the geospatial information management initiative. It is a plan to achieve the long term and overall aim of the Integrated Geospatial Information Framework and provides the direction for defining the institutional arrangements.

The strategy can vary in scale and scope, ranging from a comprehensive master plan to a set of nested strategies and action plans that span different thematic use cases, technical issues, and sectors.

The strategy can also be reviewed and developed in phases to provide flexibility for adaptation to evolving priorities and focus areas for geospatial information management. Depending on Member States' political and administrative structures, the formulation of the strategy may be mandated by legislation or take place as part of policy processes<sup>3</sup>.



Information on how to create a vision and mission statement, and strategic goals is provided in Appendix 1.2.

The strategy development process should include the views of all stakeholder groups. Typically, this is achieved through a Strategic Workshop and a consultation process of the draft strategy where key stakeholder groups can have input to the strategy's development (See SP9: Communication and Engagement). This can take place through various approaches. For example, visioning exercises can be conducted to identify broad outcomes, strategies and opportunities; while roundtable discussions and leadership forums may complement these exercises by articulating more detailed objectives and plans. Individual interviews may also be held with key experts and stakeholders for in-depth discussions and consultation<sup>4</sup>.

The strategy should include the case for change, compliance to agency missions, significance and examples of benefits such as economic development, commercial opportunities and societal wellbeing, and consider specific legal and policy requirements. This may be supported by feasibility studies that aim to assess and demonstrate benefits of the strategy<sup>5</sup>.

Examples of geospatial information management strategies are provided in Appendix: Examples.

← Red text reflects content from the NIA Foundational Guide

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A Strategic Alignment Study assists countries to align geospatial information management activities to what matters most.

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<sup>3</sup> UN-GGIM NIA-WG. 2019. Foundational Guide to NIA Instruments for Geospatial Information Management, p. 44.

<sup>4</sup> Ibid., p. 46.

<sup>5</sup> Ibid., p. 45.

## Appendix: Examples

### Geospatial Information Management Strategies<sup>7</sup>

Australia: In Australia, national geospatial information activities are guided by a number of strategies. The Spatial Information Council's (ANZLIC) 2016-2019 Strategic Plan articulates the vision that "*Spatially referenced information that is current, complete, accurate, affordable and accessible is used to inform decision making for economic, social and environmental outcomes.*" ANZLIC's Collaboration Framework (2018) supplement the strategic plan, articulating agreed national strategic priorities and identifying key inter-jurisdictional collaborative projects through which strategic priorities are being addressed.

The intergovernmental Committee on Surveying and Mapping (ICSM), an ANZLIC implementation committee, maintains a five-year Strategic Plan (aligned to the ANZLIC plan) which it reviews every two years when a new Chairman is appointed. The current Strategic Plan 2016-2019 aims to develop and deliver public sector spatial capability through strategic focus areas related to research, communications, spatial data and standards and integrated program management. These plans are supplemented with thematically-oriented strategies and plans that are developing through the Inter-Governmental Committee on Surveying and Mapping, including the Elevation and Depth 2030 Strategy, Cadastre 2034 Strategy, and the Geocentric Datum of Australia 2020.

The 2026 Spatial Industry Transformation and Growth Agenda (2026Agenda) is a whole-of-sector initiative of business, government, research, academia and spatial-user organisations. It is led by the industry with participation of industry, government and research sectors. It sets out the roadmap to drive accelerated growth to transform the Australian spatial sector and location-dependent industries over the next 10 years. The 2026 agenda action plan was crafted through consultation with over 400 individuals through a series of Leadership Forums across Australia together with one-on-one interviews with representatives of priority sectors including agriculture, health, transport and energy. The initiative aims to act as a catalyst to maximise the innovation, productivity and competitiveness of the industry across Australia.

Japan: Following Article 9 of NSDI act, or the Basic Act on the Advancement of Utilizing Geospatial Information (AUGI), the government has developed five-yearly Basic Plans for AUGI to achieve the utilisation of geospatial information in a comprehensive and well-planned manner. The Basic Plans provide basic guidelines for the policies for the advancement of utilizing Geospatial Information, as well as for GIS and Satellite Positioning, Navigation and Timing (PNT) Systems. The Geospatial Information Authority of Japan (GSI) leads the development of the Basic Plans and direction toward AUGI by gathering the views of government agencies, industry and academia.

Malaysia: The National Infrastructure for Land Information System (NaLIS), led by the Department of Survey and Mapping, was formed in 1997 by an executive order by the Chief Secretary, to promote the efficient sharing and exchange of geospatial information among land-related agencies. The need for geospatial information in the planning and development of land resources had existed since the early 1970s. However, the computerised land information systems that had been developed since existed as standalone systems. In the mid-1990's, Malaysia started an initiative to establish a national land information system. The Central Board for Real Estate Data Sweden was appointed to conduct a feasibility study to determine the initiative's efficiency, before the SDI concept was initiated under the NaLIS framework.

In 2002, NaLIS transitioned to the Malaysian Geospatial Data Infrastructure (MyGDI), led by the Malaysian Centre for Geospatial Data Infrastructure (MaCGDI), to increase efficiency of SDI implementation and account for wider needs of stakeholders, including non land-related agencies and the public. MyGDI was driven by the need to move towards a knowledge-based society and economy.

Singapore: The Singapore Geospatial Master Plan was a multi-stakeholder effort amongst numerous data producers and users from the public as well as private sectors and representatives of different sector communities. A concerted stakeholder consultation process occurred over 4 months in 2016 to identify common goals, challenges and opportunities across the sectors. This took the form of a visioning exercise, which articulated broad outcomes and strategies, and roundtable discussions providing more in-depth information about specific topics. In addition, a baseline assessment of progress and achievements of Singapore's NSDI helped identify trends and opportunities for developing the Singapore Geospatial Master Plan.

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<sup>7</sup> *Ibid.*, pp. 45-46.