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Global Geospatial Information Management
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Item 10 of the provisional agenda*

Integration of geospatial, statistical and other related information

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Note by the Secretariat

Summary

The present paper contains the report of the Expert Group on the Integration of Statistical and Geospatial Information for consideration by the Committee of Experts on Global Geospatial Information Management.

At its twelfth session, held in New York from 3 to 5 August 2022, the Committee of Experts adopted decision 12/108, in which it urged Member States to continue to implement and operationalise the Global Statistical Geospatial Framework as a tool for attaining geospatially enabled statistical data for the 2030 Agenda for Sustainable Development and the 2020 round of population censuses, and recognised that addressing the many data integration challenges presented by the global coronavirus disease (COVID-19) pandemic and other complex issues, such as climate change and disaster resilience, requires the full implementation of the Global Statistical Geospatial Framework at the national and regional levels. The Committee noted that the Expert Group had completed its workplan for the period 2020–2022 and welcomed the newly developed workplan for the period 2022–2024, and in that regard stressed the importance of leveraging the United Nations Integrated Geospatial Information Framework for the statistical domain, to strengthen the interlinkages between that Framework and the Global Statistical Geospatial Framework to enhance the potentially transformative role of geospatial information in the statistical production process. The Committee encouraged the Group to examine the broader needs and demands that it might face in the future, identifying needs and common gaps, disseminating good practices and finding opportunities to share insights for building and sustaining a robust support framework, and to continue the development of guidance materials to assist Member States with their efforts in the implementation of the Global Statistical Geospatial Framework together with the United Nations Integrated Geospatial Information Framework.

In this present report, the Expert Group provides information on its recent activities, including the outcomes of its seventh meeting, held at the Economic Commission for Latin America and the Caribbean in Santiago, on 1 and 2 December 2022, and provides details of its future strategic direction as determined by the mandates provided to it by the Statistical Commission and the Committee, including how the Group will redirect its attention towards geospatially integrated statistics to meet new demands such as statistics related to climate change, disaster and health (for example, on the coronavirus disease (COVID-19)) by expanding on the United Nations Integrated Geospatial Information Framework for the statistical domain. In addition, the Group examines how it can support the implementation of Economic and Social

* E/C.20/2023/1

Council resolutions [2022/3](#) and [2022/24](#), and in particular how the Group aims to respond to the growing demands for the integration of statistical and geospatial information within population and housing censuses and the 2030 Agenda for Sustainable Development.

I. Introduction

1. In the era of rapid urbanisation, advancing technology, and growing demand for evidence-based decision-making, the integration of statistical and geospatial information has emerged as a critical endeavour. The Committee of Experts adopted the Global Statistical Geospatial Framework (GSGF) in its decision 9/106 of August 2019. The Statistical Commission subsequently endorsed the Committee's decision by its decision 51/123 of March 2020. Now, at the milestone of its first decade, the Expert Group can look back and reflect on its achievements in helping countries meet the enhanced demands for geospatially integrated statistical data. Over this decade, this focus has primarily been on data for the Sustainable Development Goals (SDGs) and the 2020 Round of Population and Housing Censuses. But, as most countries have either completed or are in the final stages of preparing for their 2020 round of population and housing censuses, the Expert Group must also shift its focus beyond this significant milestone. The vital role of geo-statistical integration and the GSGF was underscored during the global COVID-19 pandemic, now with its new strategic direction; the Expert Group aims to advance the GSGF so it can meet the integration challenges posed by other complex issues, such as climate change and disaster resilience.

2. The Expert Group advocates that the integration of statistical and geospatial information be considered crucial for meeting the demands of the changing data landscape. This should not mean focusing efforts on expanding geographical information system units within national statistical offices. The expansion of such units is a good first step, especially in the context of conducting a census. Still, many Member States have existing national geospatial information agencies capable of providing support that can be leveraged. In its decision 54/118 of March 2023, the Statistical Commission encouraged statistical offices to collaborate with their national geospatial information agencies to ensure that the GSGF is implemented to its potential based on national circumstances.

3. Thus, the Expert Group urges that a holistic approach be taken to develop a nationally integrated data environment, the importance of which has been demonstrated by the evolving, complex demands of COVID-19. Such an approach requires leadership at all levels to help to break down silos, identify gaps, utilise existing resources accordingly and develop new partnerships and institutional arrangements as opportunities arise. To do this, the Expert Group is advancing in several areas, including adding annexes to the GSGF to capture innovations and other novel advances since its adoption, developing a discussion paper on how the United Nations Integrated Geospatial Information Framework (UN-IGIF) can be expanded for the statistical domain and is actively working to support its parent bodies with the implementation of Economic and Social Council (ECOSOC) resolutions [2022/3](#) and [2022/24](#).

4. In making decision 12/108 at its twelfth session in August 2022, the Committee of Experts, *inter alia*, encouraged the Expert Group to undertake an examination of the broader needs and demands that it might face in the future, identifying needs and common gaps, disseminating good practices and finding opportunities to share insights to build and sustain a robust support framework, and to continue the development of guidance materials to assist Member States with their efforts in the implementation of the GSGF together with the UN-IGIF.

5. This present report informs the Committee of Experts on the Expert Group's activities and progress since the twelfth session, including how it has developed its future strategic direction, and how the Group will redirect its attention towards geospatially integrated statistics to meet new demands such as statistics related to climate change, disaster and health, for example, on the global coronavirus (COVID-19) pandemic. The Committee of Experts is invited to take note of the report and express its views on the Expert Group's progress in statistical and geospatial integration, including the associated background document on 'Expanding the IGIF for the Statistical Domain', and urge countries to continue to adopt the GSGF. Points for discussion and decision are provided in paragraph 33.

II. Fifty-fourth Session of the UN Statistical Commission

6. At its fifty-fourth session, convened in New York from 28 February to 3 March 2023, the Statistical Commission welcomed the Expert Group's report. In making decision 54/118, the Commission noted the Expert Group's revised terms of reference and workplan for 2022–2024, inclusive of expanding on the Integrated Geospatial Information Framework for the statistical domain and updating the GSGF to reflect national and regional experiences in its implementation and welcomed the Expert Group's offer to assist the Commission in its efforts to implement Economic and Social Council resolution 2022/3.

7. The Commission also noted with concern that several countries, especially developing countries, still lack adequate capacity to integrate statistical and geospatial information, urged the continued implementation and operationalisation of the GSGF and encouraged statistical offices to collaborate with their national geospatial information agencies to ensure that the GSGF is implemented to its potential based on national circumstances. Furthermore, the Commission also noted the requests for the Secretariat to provide more technical support to Member States in the implementation of the GSGF, to strengthen statistical and geospatial integration at the national level, and to facilitate this through the organisation of workshops and other technical assistance mechanisms.

8. The Expert Group collaborated with the Working Group on Geospatial Information of the Inter-Agency and Expert Group on the Sustainable Development Goals (IAEG-SDGs) convened the side event Geo-statistical Integration - The Global Statistical Geospatial Framework (GSGF) and Beyond¹. The side event helped communicate the progress made by the Expert Group and the WGGI in this domain, setting forth an ambitious and achievable vision for the Commission in this area, anchored by the operationalisation and implementation of the GSGF and the promotion of the SDGs Geospatial Roadmap, grounding practical actions that national statistical systems can take to realise the benefits and opportunities of geospatial information. In this regard, through a participatory discussion led by strategic thinkers and leaders, the side event worked to raise awareness of the potential of geo-statistical integration to relevant functional groups and the broader statistical community.

III. Advancing the Expert Group's Work

A. Developing and enacting the Expert Group's new strategic direction

9. At its seventh meeting, held in December 2022 at the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) in Santiago, Chile, the Expert Group reviewed and deliberated its future direction. In summary, the Expert Group has identified the following priorities:

- (a) Strengthen the coherence and coordination between the geospatial and statistical communities. To do this, the Expert Group is developing a paper on expanding the Integrated Geospatial Information Framework for the statistical domain and has kinetically engaged across the Commission's functional groups;
- (b) Deepen capacity-building initiatives through a capacity assessment tool that helps countries assess the maturity of statistical-geospatial integration and strengthen the coordination of capacity-building efforts in the statistical-geospatial domain, including regional commissions, to avoid the duplication of work and allow for a more unified approach among the actors involved in capacity building; and,

¹ Geo-statistical Integration - The Global Statistical Geospatial Framework (GSGF) and Beyond <https://unstats.un.org/UNSDWebsite/events-details/un54sc-020322023-geo-statistical-integration>

(c) Conduct a high-level GSGF review to develop additional items for consideration when integrating statistical and geospatial information as appendices or amendments to guidance already provided.

10. These priorities and overall strategic direction are considered within the Expert Group's report² to the Statistical Commission. Importantly, this report introduced background documents for its new terms of reference³ and work plan 2022 – 2024⁴. In this regard, the Committee is invited to note the Statistical Commission's decision 54/118 pertaining to these resources.

B. Taking stock of progress against the work plan 2022 - 2024

11. The work plan 2022 -2024 called for the establishment of three Task Teams to organise the Expert Group's work. For each of its task teams, the Expert Group welcomes new and existing members to participate and advance its work.

Task Team on expanding the Integrated Geospatial Information Framework.

12. Led by Canada and Mexico, the task team's primary focus is to produce a paper entitled Expanding the IGIF for the Statistical Domain. The core sections of this paper align with the nine strategic pathways of the UN-IGIF. The Expert Group intends to present this paper to the Statistical Commission at its upcoming fifty-fifth session in March 2024. As such, the paper is presented as a background document to this present report for the Committee of Experts to express its views in preparation for the paper's submission to the Commission. Furthermore, the Expert Group notes the need to include national experiences of how the UN-IGIF is used to support national (and regional) statistical systems and invites Member States and regional bodies to provide these experiences. The Task Team aims to finalise the paper for the Expert Group's consultation by 30 September 2023 and requests the Committee to provide its perspectives by this date.

Task Team on Capacity Building.

13. Led by Norway and Sweden, the task team has two primary objectives: a) to develop a capacity assessment tool that helps countries to assess the maturity of statistical-geospatial integration and b) to strengthen the coordination of capacity-building efforts within the statistical-geospatial domain to avoid duplication of work and to enable a more unified approach among actors involved in capacity building. The task team has reviewed existing tools to scope the work of developing a capacity assessment tool; in this respect, the task team notes the existence of several useful existing tools to build on, but there are currently no tools targeting statistical-geospatial integration. To help advance in this area, Norway is exploring how to mobilise resources to help develop a first-generation capacity assessment tool for statistical-geospatial integration.

Task Team on the GSGF.

14. Led by the United Kingdom and the United States of America, the task team has begun a review of the GSGF and is working to update the GSGF with advancements made since its adoption. As originally drafted, the GSGF was primarily focused on supporting the 2020 Round of Population and Housing Censuses. As this phase of work has largely concluded, the Expert Group has noted that the GSGF should be expanded to support a broader scope of geospatial and statistical integration activities. Subsequently, the team drafted a proposed list of topics to supplement the GSGF for submission to the Expert Group to raise awareness and solicit further support for the work plan. This collaborative plan proposed the inclusion of additional GSGF guidance

² E/CN.3/2023/19 <http://undocs.org/E/CN.3/2023/19>

³ https://unstats.un.org/UNSDWebsite/statcom/session_54/documents/BG-4b-EG-ISGI_ToR_2023-E.pdf

⁴ https://unstats.un.org/UNSDWebsite/statcom/session_54/documents/BG-4b-EG-ISGI_Work_Plan_2022-2024-E.pdf

related to grids, user-centric geographies, big data, Earth observations, change detection, implementation of global standards, and metadata standards, among other topics elaborated upon in Annex 1 (English) and Annex 2 (Spanish) ‘Topics to consider as annexes to the GSGF’ to this present report. The task team now aims to convene additional working meetings to continue elaboration of the topics and to encourage member states to contribute to topics of interest, with specific outreach to groups that have expressed support or interest in the integration of geospatial and statistical data. The Committee of Experts is invited to provide its guidance on these topics as annexed by 30 September 2023.

C. Promoting the implementation and operationalisation of the GSGF

15. To help countries with the operationalisation and implementation of the GSGF, the Expert Group is presiding over efforts to make the GSGF more accessible to a wider audience by translating the GSGF into multiple languages. Currently, the GSGF is available in Arabic, English, Chinese, French, Portuguese, and Spanish. These translations have significantly contributed to the dissemination and understanding of the GSGF among various linguistic communities. The Expert Group acknowledges the significant progress made in translating the GSGF into various languages and offers its appreciation to Brazil and Kuwait for translating the GSGF into Portuguese and Arabic, respectively. Moreover, the Expert Group welcomes offers from other member states to translate the GSGF into the last remaining official language of the United Nations, Russian, as well as other languages. This openness to further translations ensures the GSGF can reach an even broader audience, fostering greater inclusivity and engagement.

16. Another available tool is the GSGF e-Learning Platform⁵, hosted by the Pan-American Institute of Geography and History (PAIGH). By transforming the static content of the GSGF into an interactive experience, the platform enables learners to engage with multimedia elements, such as videos, simulations, quizzes, and interactive exercises. This dynamic approach facilitates a deeper understanding of the GSGF’s principles and improves knowledge retention while offering the flexibility of self-paced learning from any location and device.

17. The co-Chairs have also presented the GSGF at various international forums, including the World Data Forum, the ninth session of UN-GGIM: Americas, and virtually at the Global Webinar on Strengthening Climate Change and Disaster-Related Statistics: Needs, Priorities and Actions for Africa, Latin America and the Caribbean.

18. Geo-statistical capacity-building activities are conducted by several organisations, initiatives, programmes and bilaterally between Member States. To strengthen its coordination capability, the Expert Group intends to engage with regional stakeholders (including UN regional commissions, the regional committees of UN-GGIM and other relevant capacity development organisations). In line with previous decisions of the Statistical Commission and Committee of Experts, the Expert Group reiterates the need for Member States to mobilise resources that enable the promotion, implementation, and operationalisation of the GSGF.

D. Strengthening coordination and coherence

19. A tangible outcome of the seventh Expert Group meeting was a renewed request to better coordinate and streamline capacity building in the statistical-geospatial domain. Since this meeting, the Expert Group has actively worked across domains to help strengthen coordination and coherence and help raise awareness of the GSGF.

⁵ https://www.ipgh.org/mx/?page_id=4347

At the Regional Level

20. The Expert Group applauds the efforts of regional groups in creating their own working groups on geo-statistical integration and is indicative of the maturity of the Committee's regional architecture. In the spirit of its mission as a coordinating body, the Expert Group endeavours to further assist with disseminating information and implementing these frameworks, sharing best practices across the regions, and working to facilitate communication across our global community of experts. In support of this, the co-Chairs have begun to compile lists of relevant groups and contacts at the regional level, intending to build a baseline of current efforts and strengthen the interlinkages between the global Expert Group and regional entities.

Across the Committee of Expert's Functional Groups

21. The Expert Group welcomes deeper collaboration with the other functional groups of the Committee of Experts. The primary touch point between the Expert Group and the Committee is the HLG-IGIF, exemplified by members actively participating in both groups. Furthermore, the Expert Group welcomes the draft paper on Authoritative Data in an Evolving Geospatial Landscape by the Working Group on Policy and Legal Frameworks. The Expert Group reiterates its willingness to assist, to help raise awareness of this paper, and to communicate other relevant outputs of the Committee's functional groups to the broader statistical community where appropriate.

With the Functional Groups of the Statistical Commission.

22. As part of its aims to foster the interlinkages between the geospatial and statistical communities and promote the GSGF, the Expert Group has consulted with several functional groups of the Statistical Commission. The outcomes of these discussions include:

- (a) The appointment of Brazil to lead part of the review of the Principles and Recommendations for Population and Housing Censuses, specifically its Task Team 3 on the use of geospatial information in census operations. This has enabled the co-Chair to build a bridge between this important work and other members of the Expert Group, namely - Colombia, Egypt, Poland, the United States of America, OECD and UNECLAC. To date, the task team is working on the review of the existing materials, primarily used for the 2020 Round of Population and Housing Census. This work has the strategic objective not just to update these materials but also to contextualise the importance of the GSGF and UN-IGIF as part of the broader process of producing relevant guidance for the 2030 Round of Population and Housing Census.
- (b) Agreement between the Expert Group and the Statistical Commission's Committee of Experts on Business and Trade Statistics' task team on Statistical Business Registers to draft a paper which describes the means of integrating geospatial information into Statistical Business Registers (in full alignment with the GSGF), what the benefits of such integration are, how to integrate geospatial information in practice and how to maintain this integration in a sustainable manner. The intent is to present this report to the Commission's fifty-fifth session in March 2024.
- (c) Decision 54/116 of the Statistical Commission supported enhanced collaboration between its Committee of Experts on Big Data and Data Science for Official Statistics and the Expert Group on the Integration of Statistical and Geospatial Information. The Expert Group welcomes this Committee's intent to support the implementation of the GSGF⁶ and looks forward to future engagement.

⁶ E/CN.3/2023/17 https://unstats.un.org/UNSDWebsite/statcom/session_54/documents/2023-17-BigData-E.pdf

23. There is still much ground to be gained by further engagement with the Commission's functional groups, and the Expert Group welcomes the Committee's assistance in this regard.

IV. Ongoing working modalities of the Expert Group

24. The Expert Group convened its seventh meeting⁷ at UNECLAC, Santiago, Chile on 1-2 December 2022. At this meeting, the Expert Group welcomed Brazil and Ireland as its new co-Chairs, agreed on its newly revised Terms of Reference, and agreed on its Work Plan 2022 – 2024. Since this meeting, the Expert Group has been conducting quarterly (approximately) virtual meetings. Alongside these regular virtual meetings, ad-hoc meetings have been convened to support the work of the Expert Group, including regular meetings between the co-Chairs and the Secretariat, with its task teams and work streams convening virtual meetings as appropriate.

25. The Expert Group looks forward to convening its eighth plenary meeting in person in the first semester of 2024. Brazil has offered to host the eighth meeting of the Expert Group in Rio de Janeiro. Still, the Expert Group has decided to convene its next meeting outside the Americas and Europe (which have hosted its previous meetings) and look towards the regions of Africa, Asia and the Pacific, or Western Asia as a means of enabling participation in other regions and promoting the GSGF to address geo-statistical integration worldwide.

26. Moreover, the Expert Group is conscious of the significant barrier posed by language preventing some Member States from greater engagement in the Expert Group's work. In this respect, the Expert Group highlights that UNECLAC not only hosted the Expert Group's seventh meeting but also provided simultaneous translation for participants, allowing for in-depth discussion across the language barrier. Acknowledging the diversity of the Member States, the Expert Group welcomes support from regional focal points concerning translation and identification of the most effective communication modalities to ensure that information about the importance of the GSGF, and its role in enabling geo-statistical integration, is reaching the right audience.

V. Geo-statistical integration - A call to action to ensure that the 2030 Agenda for Sustainable Development leaves no-one behind

27. Global and regional events resumed in late 2022 and early 2023, especially with the declaration of the end of the Public Health Emergency of International Concern by the World Health Organization (WHO). During the COVID-19 pandemic, the Expert Group sought to strengthen interlinkages with relevant groups in both the statistical and geospatial communities. It also worked to participate and promote the GSGF and its implementation guide to underscore the utility of geospatially integrated statistical data for the response to COVID-19. It could be argued that COVID-19 initially caught many institutions off guard, perhaps resulting in a struggle to respond effectively. We must learn the lessons emanating from our experiences of responding to COVID-19 and apply them to the SDGs.

28. With the midterm review of the 2030 Agenda for Sustainable Development already in full swing, the world is at a critical juncture. It is clear that the 2030 Agenda is in grave jeopardy owing to multiple cascading and intersecting crises. Looking forward, we must not repeat the same mistake when answering the Secretary General's call to "rescue the SDGs" by underestimating the power of integrating geospatial and statistical information in tackling global challenges like climate change. The Sustainable Development Goals Report 2023⁸ underscores the scale of our immediate future due to

⁷ https://ggim.un.org/meetings/2022/7th_mtg_EG_ISGI/documents/EG-ISGI%207th%20Mtg%20Summary%20Report.pdf

⁸ <https://unstats.un.org/sdgs/report/2023/>

multiple crises, such as COVID-19, climate change, and conflicts. These interconnected crises have far-reaching consequences, impacting all the SDGs and giving rise to additional challenges in areas such as food, nutrition, health, education, environment, and peace and security. Achieving sustainability on a global scale requires concerted action; action that requires a strong foundation of geospatially integrated statistical data.

29. The urgency to steer the world toward sustainability has further driven the need to link data about people and businesses to specific geographical locations. The GSGF serves as an enabling framework for informed decision-making by empowering countries to transform their national data ecosystems, a more comprehensive understanding of social, economic, and environmental issues becomes possible. By integrating statistical and geospatial information, insights can be gained to a much greater extent than when these data types are viewed in isolation. Recognising the importance of geo-statistical integration, the apex intergovernmental entities of the statistical and geospatial communities have called for implementing and operationalising the GSGF at the national and regional levels. With the adoption of Economic and Social Council resolutions [2022/3](#) and [2022/24](#), the urgent need for countries to develop their capacity to integrate statistical and geospatial information is finally being recognised. In this regard, the GSGF offers a transformative opportunity to enhance understanding and foster sustainable development on a global scale, and the Expert Group stands ready to assist its parent bodies.

30. The Expert Group commends other groups' efforts to promote the GSGF. Notably, the SDGs Geospatial Roadmap and its recent paper on Examples of the implementation of the SDGs Geospatial Roadmap⁹ showcases how the GSGF helps disaggregate the SDGs by geographic location. This and other collaborations with functional groups of the Commission provide a strong model for how collaborations can start and be maintained. The Expert Group is redoubling its efforts to promote the GSGF, viewing that the adoption and progress made in its first decade is simply the start of its work. While there is broad consensus, support, and agreement on the critical importance of the GSGF and its Implementation Guide, the resources required to disseminate and implement it were quite insufficient when faced with the fact that several countries, especially developing countries, still lack adequate capacity to integrate statistical and geospatial information and to implement and operationalise the GSGF.

31. At this present session, the report presented for the Future geospatial information ecosystem¹⁰ envisages how the future could unfold. A key piece of this future is enabling machine-to-machine data integration. In this regard, interoperability is paramount in today's interconnected world as it enables seamless communication, integration, and collaboration between various systems, platforms, and organisations. It ensures that different technologies and data sources can work together effectively, allowing for efficient exchange and utilisation of information. Interoperability eliminates silos, promotes data sharing and integration, and enables organisations to make informed decisions based on comprehensive and accurate data. It enhances efficiency, productivity, and innovation, enabling better coordination, cooperation, and interoperable services across sectors and domains. The GSGF offers the basis for achieving this interoperability by ensuring a consistent mechanism for geocoding statistical (and other related information) and allowing this data to be aggregated or disaggregated accordingly. Bluntly, to solve the puzzle of sustainable development, we must create novel data streams, but can we fill the gaps with data that is currently siloed? Perhaps, much of the data we have available is usable and could add significant value to our decision-making processes if only we could unlock its potential by making it interoperable. The GSGF offers a consistent mechanism for achieving this, but it requires the ***will and resources*** to make it happen.

⁹ https://unstats.un.org/UNSDWebsite/statcom/session_54/documents/BG-3a-Examples-of-the-implementation-of%20the-Geospatial-SDG-Roadmap-E.pdf

¹⁰ E/C.20/2023/8/Add.1 Report

32. It is in that light that the Expert Group looks forward. The need to mobilise resources is greater than ever. Members, such as Norway, are exploring how to mobilise financial resources to support the development of specific assessment tools; others, such as the United States of America and UNECLAC, offer their support through mobilising resources to translate the Expert Group's work; and all that contribute to the Expert Group through their advocacy and participation are welcomed. The transformational potential of the GSGF is clear, and where it has been implemented, the GSGF demonstrates that it can profoundly impact a nation's geo-statistical capacity. But as work to assess global GSGF readiness has demonstrated, the GSGF is unequally adopted, leaving countries behind. To ensure that no one is left behind, especially developing countries, the implementation of the GSGF fundamentally, and critically, needs to be adequately resourced.

VI. Points for discussion

33. **The Committee of Experts is invited to:**

(a) Take note of the Expert Group's progress, and to urge and support the continued adoption and implementation of the Global Statistical Geospatial Framework;

(b) Take note of the Expert Group's revised terms of reference and workplan for the period 2022–2024;

(c) Urge Member States to engage and contribute to the updating of the Global Statistical Geospatial Framework, in the context of the Expert Group's future strategic direction, the mid-term review of the 2030 Agenda for Sustainable Development, and other emergent concerns that necessitating the integration of geospatial, statistical and other related information;

(d) Provide guidance and feedback on the background document provided to ensure that the paper on 'Expanding the IGIF for the Statistical Domain' remains aligned with the UN-IGIF; and,

(e) Consider and recommend options available to Member States and partners to actively support the work of the Expert Group, particularly through participation and resources.

Annex 1: Topics to consider for annexes to the GSGF**Common geographies**

- Potential to revisit and refine the current GSGF prose

User Defined/User-centric Geographies

- Potential Use-cases and Benefits
 - Built from lower-level administrative units or a parallel reference system (e.g., grids, below)?
- Costs and Risks
 - Issues with privacy protections and disclosure avoidance, (mis)alignment with other national and international geographic systems, and level of detail available
 - Does this reduce the burden on lower-level unit reporting or simply fill out the space of data products?
- Implementation methods and other guidance

Grids

- Potential Use-cases and Benefits
 - Can facilitate user defined geographic queries (above), cross-national comparisons where administrative unit levels are not geographically or functionally equivalent, and integration with non-survey data sources that are already delivered in gridded formats
 - Rapid integration of data and increased interoperability
- Costs and Risks
 - Systemic issues with privacy protections and disclosure avoidance, misalignment with administrative geography, etc. – in some ways, effectively a universal user-defined geography.
- Implementation methods and guidance

Consistency, comparability, and temporality of data products

- Potential Use-cases and Benefits
 - Evaluating boundary and status changes of administrative units to establish a notification threshold and data use guidance ▪ when are changes significant enough to break temporal equivalency (e.g. are data from 2010 in an administrative unit which saw substantial change in 2020 still a viable point of comparison, or will recourse to lower levels of reporting be needed?)
- Temporal synchronisation between survey and geographic production lifecycles
 - How to ensure that surveys are matched to relevant geographic boundaries in effect at the time of collection (how does this interact with ‘rolling’ surveys of geography that is not updated at the same interval?);
- Equivalency relationships – e.g. in areas where multiple levels of administrative units share the same geographic extent, are collection and tabulation processes returning the same results for each within the reporting parameters?
- Costs and Risks
 - Assessing longitudinal assessments versus current data needs - how important are durable geographies for each data product (e.g. long term demographics versus acute health indicator reporting), and what steps are required to balance between these needs?

Integrating Remotely Sensed Data (particularly Earth Observation Data)

- Potential Use-cases and Benefits
 - Use as a reference layer to for geographic boundaries and features;
 - Visualisation for policy-makers;
 - Can enable change detection (below), what other workflows?
- Costs and Risks
 - Considerations on cell size and area (especially at very high or low latitudes or in countries with large areas), projection and resolution interoperability with statistical data grids (above), and update cycle;
 - What sources are both amenable and available to member states?

Change Detection

- Potential Use-cases and Benefits

- Can quickly identify new housing, changes in boundary features like roads or hydrology, and agricultural indicators for non-Census data points;
- Modeling, especially using infrared bands, can also help quantify proxies for geographic entities, e.g. impermeable surfaces for urbanisation;
- With sufficient support, detection can be automated;
- Administrative data does exist in some countries that could be a better fit for these concerns
- Costs and Risks
 - Dependent on availability of remotely sensed datasets in most instances (other, non-visual examples?);
 - Requires robust development of other GSGF planks to be implemented effectively.

Implementation of Standards

- Discussion points
 - Public communication of the standards used and provide adequate documentation of processes and products
 - Data vs. technology standards
 - National standards vs. international standards
 - Are there legal requirements for reporting that demand certain standards and do they conflict with other standards
 - How differentiated is this from a “Metadata” topic? How do statisticians and policymakers think about standards versus geographers and data providers use metadata?
- Metadata
 - standardisation and interoperability (metadata is a type of standard – it belongs within standards as a sub-category within the larger category of standards)
 - FGDC and NGDAs/NSDIs (USA centric)
 - SDMX and geospatial enablement?
 - Cataloging of metadata – often data has inherent geographic characteristics, but there’s no indication in the metadata that the geographic information is in the file – how to communicate and determine in such a way that it is machine readable, etc.;
 - Integration of statistical and geospatial metadata
 - Example – no geoheader in the data.census.gov files →ACS files don’t have a clear geoheader to easily bridge between the statistical tables and the geospatial/GIS/geospatially enable the data
 - Geographic data vs. geospatial data – first three levels of GSGF are the “geographic” layers, then the last two are implementing geospatial data – enabling seamless GIS integration of the statistics.

Potential Additional Topics

- Non-Census data activities, SDGs, and indicators, e.g. agricultural production, hydrological monitoring
- Internet of things and statistical/geospatial integration
 - Do we have any insight to provide? Is this worth pursuing?
- Data warehousing
 - Does it make sense to include cloud computing/data lakes?
- Big Data
- Urban continuum
- Data Disclosure/Privacy
 - Calibrating unit size and data granularity;
- Microdata
 - How do you create microdata that can be aggregated/disaggregated? How do you take geospatial issues into account with aggregating/disaggregating data?
- Topology – how do you build flexible topology and what does it enable?

Annex 2: Temas para considerar en anexos al GSGF

Entidades geográficas comunes

- Posibilidad de reconsiderar y perfeccionar el texto actual del GSGF

Entidades geográficas definidas por el usuario/centradas en el usuario

- Casos de uso y beneficios posibles
 - ¿Formadas con unidades administrativas de niveles inferiores o con un sistema de referencia paralelo (p. ej., cuadrículas, a continuación)?
- Costos y riesgos
 - Problemas con las protecciones a la privacidad y con evitar la divulgación de datos, (falta de) alineamiento con otros sistemas geográficos nacionales e internacionales, y nivel de detalle disponible
 - ¿Reduce la carga de reportar por parte de las unidades de niveles inferiores, o simplemente ocupa el espacio de los productos de datos?
- Métodos de implementación y otras pautas

Cuadrículas

- Casos de uso y beneficios posibles
 - Pueden facilitar las búsquedas geográficas definidas por el usuario (mencionado anteriormente), las comparaciones cruzadas a nivel nacional donde los niveles de unidades administrativas no sean equivalentes desde el punto de vista geográfico ni funcional, y la integración con fuentes de datos no provenientes de encuestas, que se proporcionen ya en formatos de cuadrículas
 - Integración rápida de los datos y mayor interoperabilidad
- Costos y riesgos
 - Problemas sistémicos con las protecciones a la privacidad y la capacidad de evitar la divulgación de datos, falta de alineamiento con la geografía administrativa, etc. De cierto modo, sería de hecho una geografía universal definida por el usuario.
- Métodos y pautas de implementación

Congruencia, comparabilidad y temporalidad de los productos de datos

- Casos de uso y beneficios posibles
 - Evaluar cambios en los límites y en el estatus de las unidades administrativas a fin de establecer un umbral de notificación y pautas para el uso de los datos
 - ¿Cuándo son los cambios lo suficientemente significativos para quebrar la equivalencia temporal? (Por ejemplo, los datos del 2010 de una unidad administrativa que cambió de manera considerable en el 2020, ¿todavía son un punto viable de comparación, o se deberá recurrir a niveles inferiores de reporte?)
 - Sincronización temporal entre los ciclos de vida de las encuestas y de la producción geográfica
 - ¿Cómo garantizar que las encuestas se alineen con los límites geográficos relevantes existentes en el momento de la recopilación? (¿Cómo interactúa esto con encuestas "continuas" acerca de una entidad geográfica que no se actualiza en el mismo intervalo?)
 - Relaciones de equivalencia: por ejemplo, en áreas donde niveles múltiples de unidades administrativas comparten la misma extensión geográfica, los procesos de recopilación y tabulación, ¿están dando los mismos resultados para cada una dentro de los parámetros de reporte?
- Costos y riesgos
 - Comparación de las evaluaciones longitudinales con las necesidades de datos actuales: ¿qué tan importantes son las entidades geográficas durables para cada producto de datos (p. ej., datos demográficos a largo plazo en comparación con indicadores de problemas graves de salud), y qué pasos se deben seguir para equilibrar estas dos necesidades?

La integración de datos teledetectados (en particular, los datos de la observación de la Tierra)

- Casos de uso y beneficios posibles
 - Uso como estrato de referencia para límites y rasgos geográficos;
 - Visualización para las personas responsables de formular políticas;
 - Puede permitir la detección de cambios (a continuación). ¿Qué otros flujos de trabajo?
- Costos y riesgos
 - Consideraciones con respecto al tamaño y la superficie de las celdas (especialmente en latitudes muy altas o muy bajas, o en países con superficies extensas), a la interoperabilidad de la proyección y la resolución con las cuadrículas con datos estadísticos (mencionadas anteriormente), y al ciclo de actualización;
 - ¿Qué fuentes están disponibles y al alcance de los estados miembros?

Detección de cambios

- Casos de uso y beneficios posibles
 - Puede identificar rápidamente viviendas nuevas, cambios en los rasgos de límites como carreteras o hidrología, e indicadores agrícolas para puntos de datos no censales;
 - El modelado, en particular si se usan bandas infrarrojas, también puede ayudar a cuantificar los sustitutos de entidades geográficas, p. ej., superficies impermeables para urbanización;
 - Con el apoyo suficiente, la detección se puede automatizar;
 - Existen datos administrativos en países que se adecuarían mejor a estas inquietudes.
- Costos y riesgos
 - En la mayoría de los casos, depende de la disponibilidad de conjuntos de datos teledetectados (¿otros ejemplos no visuales?);
 - Para su implementación efectiva requiere un sólido desarrollo de otras políticas del GSGF.

Implementación de estándares

- Puntos de discusión
 - Comunicar públicamente los estándares que se usaron y proporcionar documentación adecuada sobre los procesos y los productos
 - Datos comparados con los estándares tecnológicos
 - Estándares nacionales comparados con los estándares internacionales
 - ¿Existen requisitos legales de reporte que exijan ciertos estándares, y cómo discrepan de otros estándares?
 - ¿Cómo se diferencia esto de un tema acerca de "metadatos"? ¿En qué difiere la manera en que los estadísticos y las personas responsables de formular políticas consideran los estándares de como los geógrafos y quienes proporcionan los datos usan los metadatos?
- Metadatos
 - Estandarización e interoperabilidad (los metadatos constituyen un tipo de estándar; son una subcategoría de la categoría mayor de estándares)
 - Comité de Datos Geográficos Federales y activos de datos geoespaciales nacionales/Infraestructura Nacional de Datos Espaciales (centrados en los EE. UU)
 - ¿SDMX y la habilitación geoespacial?
 - Catalogación de los metadatos (a menudo, los datos tienen características geográficas inherentes, pero los metadatos no contienen la indicación que la información geográfica está en el archivo); cómo comunicarlos y hacerlo de manera que una computadora los pueda procesar, etc.
 - Integración de metadatos estadísticos y geoespaciales
 - Ejemplo: los archivos de data.census.gov no contienen encabezamiento geográfico → Los archivos de la ACS no contienen un encabezamiento geográfico claro para hacer una conexión fácil entre las tablas estadísticas y los datos geoespaciales del GIS/para habilitar los datos en términos geoespaciales
 - Datos geográficos vs. datos geoespaciales: los tres primeros niveles del GSGF son las capas "geográficas", y los dos últimos implementan los datos geoespaciales. Esto permite una integración sin contratiempos de las estadísticas al GIS.

Posibles temas adicionales

- Actividades no relacionadas con datos censales, objetivos de desarrollo sostenible, e indicadores, p. ej., producción agrícola, monitoreo hidrológico
- Internet de las cosas e integración estadística/geoespacial
 - ¿Tenemos conocimientos para compartir? ¿Vale la pena?
- Almacenamiento de datos
 - ¿Tiene sentido incluir informática en la nube/lago de datos?
- Macrodatos
- Continuidad urbana
- Divulgación de datos/privacidad
 - Calibración del tamaño de las unidades y de la granularidad de los datos;
- Microdatos
 - ¿Cómo elaborar microdatos que se puedan agregar/desagregar? ¿Cómo tener en cuenta las cuestiones geoespaciales con respecto a la agregación/desagregación de los datos?
- Topología: ¿cómo generar topología flexible y qué permite esto?