Sixth Expert Meeting of
the Working Group on Geospatial Information of the IAEG-SDGs
Mexico City, Mexico, 9-11 March 2020

Summary Report

Introduction

The sixth expert meeting the Working Group on Geospatial Information (WGGI) of the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) brought together 35 participants[1]. This included representation from nine members of the WGGI; five international organisations; three from the Secretariat of the Committee of Experts on Global Geospatial Information Management (UN-GGIM); and 12 from the host, Instituto Nacional de Estadística y Geografía (INEGI) of Mexico. The list of participants and meeting materials can be accessed at http://ggim.un.org/meetings/2020/WG-Gi-Mexico-City/.

The meeting was chaired by Ms Paloma Merodio from INEGI, Mexico and Mr Kevin McCormack from Central Statistics Office, Ireland. The main objective of the sixth expert meeting is for members of the Working Group and invited experts to review options, develop and provide guidance and advice as to:

   a. How geospatial information, Earth observations, and other data sources can reliably and consistently contribute to the production and dissemination of the Sustainable Development Goal (SDG) indicators;
   b. How to apply geospatial information for visualisation, dissemination and monitoring of the SDGs, and data disaggregation;
   c. Apply the integration of statistical and geospatial information for the production of indicators; and,
   d. Articulate the common standards, proven national and regional practices, and experiences on the application of geospatial information in the production of statistics and the SDGs indicators.

Agenda Item #1
Introduction
Moderator: Mr Kevin McCormack, co-Chair of the WGGI and Mr Eduardo Javier Gracida Campos, INEGI, Mexico

In the welcome remarks, Mr Eduardo Javier Gracida Campos welcomed the WGGI to INEGI's headquarters in Mexico City and noted that he is offering his welcome remarks in lieu of Ms Paloma Merodio[2], co-Chair of the WGGI. She was participating in the "A Day Without Us", a local event part of International Women's Day, which highlights the role of women in society and the gap they leave when they do not participate. Mr Kevin McCormack as co-chair of WGGI thanked Mexico for hosting the WGGI, welcomed its new members, and introduced himself as the newly appointed co-Chair, offering thanks to his predecessor Ms Marie Haldorson, Statistics Sweden.

Following introductions by participants, both in the room and remotely, the Secretariat provided a brief on the prevailing Covid-19 situation, noting that due to this prevailing situation several members of the

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[1] Due to the rapidly evolving Covid-19 situation, there were a substantial number of WGGI members who were unable to attend in person, as such 10 of the 35 participants participated through a remote connection.
[2] Ms Paloma Merodio.participated as co-Chair on March 10 and 11.

WGGI were not in attendance. **The WGGI agreed that a follow up virtual meeting would be convened at a suitable opportunity to broaden participation and raise awareness of the outcomes of the sixth meeting.**

The annotated agenda of the meeting was reviewed by participants, with the co-Chair highlighting the need for flexibility in the meeting's arrangements while stressing the overarching importance of geospatial information to the 2030 Agenda.

Agenda Item #2
Setting the Scene: The WGGI from 2016 to Today
Moderator: Mr Kevin McCormack, co-Chair of the WGGI

This agenda item started to 'set the scene' for the WGGI, detailing its history and progress, while setting forth its future requirements. Mr McCormack provided an overview of the needs of the IAEG-SDGs, providing comments from both the co-Chairs of the IAEG-SDGs:

> *Ms Viveka Palm, Sweden:*
>> Collaborations often to be established in order to combine national statistics with geospatial data. The WGGI should:
>> - Consider preparing new or draw attention to existing guidelines that can support such collaborations;
>> - Make reference to existing groups involved in such collaborations, and,
>> - To identify and discuss the possible additional national sustainability analysis that can be undertaken as a consequence of the programme of work being undertaken by the WGGI.
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> *Ms Albina Chuwa, Tanzania:*
>> - Focus on how to develop Global Guidelines centred on the application of existing Frameworks and Standards which can be applied to Geospatial Information;
>> - These Guidelines can then be adopted by IAEG-SDGs and later be approved by the 52nd Commission; and,
>> - National Statistical Offices (NSOs) are in need of guidelines to reduce confusion.

In summary, he also urged the WGGI to consider how geographic disaggregation can assist countries and others in producing national and global indicators. The Secretariat further highlighted the needs of the IAEG-SDGs, noting that the reclassification of the indicators has upgraded theTier III indicators. Alongside this, the membership of the WGGI was reconstituted by the IAEG-SDGs. Moreover, the WGGI has received a new Terms of Reference. The ensuing discussion included:

- Oman queried whether there is already detailed geospatial information that can be used for the SDGs, with Ireland detailing their national experience, noting that statisticians commonly work in data and tables, whereas to support the awareness-raising and understanding of the data, there is a need for maps. In terms of capacity development, the work of the WGGI could focus on guides and tutorials to demonstrate how countries could take their data and create outputs. Ireland covered the need for an SDG coordinator across government, with all reports and publications being sent to all relevant government entities, stressing the importance of coordination as a mechanism to use geospatial information to support decision-makers;
- Namibia raised the point that the WGGI could consider how to collaborate with other groups to align their future work and outputs. Moreover, they noted that they had enshrined the overarching principle of the 2030 Agenda, the need "to leave no-one behind" within their national legislation;

- ECLAC noted that there are opportunities to strengthen the coordination and production of integrated statistical and geospatial information at the national level;
- The Secretariat recalled other elements of UN-GGIM's work programme complementary to the work of the WGGI, which includes frameworks like the Global Statistical Geospatial Framework[3] (GSGF) and the Integrated Geospatial Information Framework[4] (IGIF). These frameworks support the integration of statistical and geospatial information and develop geospatial infrastructure. They noted that geospatial information is often not always considered to be official data, which in turn raises the concern on how to transform disaggregated data into official data. In turn, this raises the question of "*What is our role as the WGGI and what is the role of the custodian agencies to support our work? In effect, while the opportunities that we have in front of us are many, we are existing in a world where the potential for confusion is increasing*". The Custdoian Agencies present reiterated their support to the ongoing work of the WGGI and emphasised their desire to support the WGGI's future work through direct contribution and reviewing the ensuing outputs; and,
- FAO noted that they are working with countries to utilise geospatial information within their national data production workflows, highlighting that some countries have challenges associated with the provision of a budget for, and the sustainability of, cloud computing. This leaves concerns within countries on the sustainability of using 'the cloud' for geospatial information, following the end of a pilot(s) with a development partner.

Following this discussion, the Secretariat provided an overview of the history of the WGGI. This included:
- The WGGI's first workplans and the development 'Shortlist results of the analysis of the Global Indicator Framework with a "geographic location" lens' report[5]. This shortlist identified where geospatial information can support or validate the production of indicators, however, has not been updated since 2017*;*
- The WGGI's workplan for 2018-2019 led to the creation of task streams on disaggregation and leveraging partnerships with EO4SDGs. While these produced technical and detailed work, these outputs were complex and poorly understood by the IAEG-SDGs. This sentiment was articulated in the report of the IAEG-SDGs in its report at the 50th session of the Statistical Commission "*expressed the concern that the Group was not sufficiently connected to the work of the working group and that there must be an increase in interaction with the statistical community* "[6]. The result of this has led to the reconstitution of the WGGI's membership and the IAEG-SDGs refining the WGGI's terms of reference; and,
- Noting that the UN Secretariat acts as the Secretariat for both the IAEG-SDGs and the WGGI, with the IAEG-SDG reporting to the Statistical Commission and the WGGI reporting to the IAEG-SDGs, with the WGGI also informing UN-GGIM of its progress at its annual sessions.

This was followed by Ireland presenting recent developments within the IAEG-SDGs and the WGGI, including the appointment of new co-Chair of the WGGI, with Mr Kevin McCormack, Ireland replacing Ms Marie Haldorson, Sweden. This presentation also illuminated specific tasks within the terms of reference and noted the opportunity for the WGGI to both measure/derive indicators and statistics from geospatial information. In the ensuing discussion:
- FAO endorsed the perspective on how geospatial information can support the creation and derivation of indicators. The Secretariat responded with that by having a consistent methodological

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[3] https://ggim.un.org/meetings/GGIM-committee/9th-Session/documents/The_GSGF.pdf

[4] https://ggim.un.org/igif

[5] http://ggim.un.org/meetings/2017-4th_Mtg_IAEG-SDG-NY/documents/WG's_Initial_Shortlist-Table_A_B.pdf

[6] E/CN.3/2019/2, page 6, section 23.

approach, noting the potential of geospatial information to produce more accurate data/indicators than be currently ascertained from official statistics. There is also a discrepancy between commonly used methods within the geospatial community and their awareness within the statistical community. Ireland responded that it should be possible to provide notice that certain methodologies used (such as buffering) are standard within certain communities and can be referenced accordingly;

- ECLAC noted that statistical registries are an underutilised source for generating indicator data, and there is a prevalence of geospatial information which needs to be fully harnessed by countries. Moreover, there is also a need to provide methodological guidance for countries, so that a single common methodology is used to produce indicator data;

- Colombia urged the WGGI to focus on two aspects: 1. Consider how countries collect geospatial information and improve disaggregation; and, 2. Consider how geospatial information is used. Moreover, there is also a need to define focal points to participate within other meetings of complementary working groups to improve coordination and communication to reduce duplication of work;

- Ireland raised the potential for the WGGI to produce a "Geospatial Information for the SDGs Roadmap" as a mechanism to encapsulate the needs of countries to leverage geospatial information to produce indicator data; and,

- ECLAC noted that there is an existing regional architecture which offers the potential to connect the ongoing work of the WGGI with the regional committees of UN-GGIM and the work of the UN Regional Commissions. The Secretariat responded, noting that there is still a gap at the global level, with connections and opportunities at the regional level potentially being stronger than at the national level.

Agenda Item #3
Setting the Scene: Progress and Results of Current Activities
Moderator: Mr Kevin McCormack, co-Chair of the WGGI

This agenda item provided the WGGI with an overview of complementary activities, which included the outcomes of the tenth meeting of the IAEG-SDGs and other relevant meetings, including the Expert Group on the Integration of Statistical and Geospatial Information (EG-ISGI), Earth Observation for the SDGs (EO4SDGs) and the 51st Statistical Commission.

Namibia, as co-Chair of the Expert Group on the Integration of Statistical and Geospatial Information (EG-ISGI), provided an overview of the future work of the EG-ISGI, including updating the WGGI on its plans following the adoption of the GSGF by UN-GGIM and the endorsement of this decision by the Statistical Commission. The EG-ISGI's plans focus around communication and supporting implementation efforts of the GSGF.

EO4SDGs provided an overview of their work on using Earth Observations to support the SDGs. This includes the development of methodologies and derivation of indicators to develop reproducible and open information. The WGGI received updates on meetings and outputs of the EO4SDGs, and this included: Examples of a survey on the use of Earth Observations (EO) to support SDG indicator monitoring; Recommendations for action by countries to harness the potential of EO data; and, Information on the outputs presented at the XVI Group on Earth Observation (GEO) Ministerial. In the ensuing discussion:

- EO4SDGs noted that 25 use cases exist where countries are using geospatial information and EO data to inform the creation of indicators. In response, ECLAC noted that there is a potential opportunity to cross-reference the outputs of the EO4SDGs survey and the shortlist of indicators.

Indonesia requested to understand the difference between EO for the SDGs and using it for national development priorities, not necessarily covered by the SDGs

- The Secretariat noted that there is much progress within countries using indicator 15.1.1, a Tier I indicator, as a common indicator being generated from EO data. Still, this progress is not universal amongst the indicators, posing the question *'what are the opportunities to use other EO data to support other indicators, especially those which are Tier II'*?
- FAO noted that they are investigating how to use *in situ* EO data (such as those derived from Radar) to strengthen the creation of other datasets and augment optical/imagery data. This data is then harmonised to prototype how indicators can be developed. FAO noted that there is a need for common standards to support the development of indicators and for common validation data to offer a ground-truth and identify whether the outputs are valid;
- EO4SDGs urged that using *in situ data* is a key resource to assist with validation, commenting that there is a potential, it would be beneficial to identify specific areas to focus work to unlock the potential, this includes looking outside our traditional modes of data production, to include non-official datasets, such as those developed by citizen science. From here, it would be possible to demonstrate and communicate the potential of other forms of data to create indicator information.

JAXA, as a member of the GEO, provided an overview of the GEO survey on EO data use for SDGs by GEO member countries. This highlighted: 25 examples of GEO member countries using EO data to derive indicators, such as indicators 6.6.1, 9.1.1, 11.3.1, 15.4.2; that datasets need to be selected to fit for the purpose and that often EO data is large and complex to process, but can provide a useful tool with which to create time-series change analysis at different scales in a consistent manner; and, there is a need further analysis and consultation with NSOs and other data-producing ministries to assess the applicability of datasets and tools for SDG Indicator reporting. The ensuing discussion included:

- FAO providing their experience in using optical data from EO and land cover information to develop data for indicator 15.4.2, which highlighted the challenge of deforestation. Here, the capability to conduct change detection is challenged by the accessibility of up-to-date high-resolution optical data. Here, deforestation could be occurring due to farmers removing trees and planting crops. As there is poor resolution data available, it is often impossible to identify this change.

The UN Secretariat also provided an overview of the outcomes of the 51st Statistical Commission, highlighting the draft decisions and noted that the report of the Commission is yet to be finalised. The draft decisions of Commission included appreciating the progress made on the methodological development and upgrading of many Tier III indicators, adopted the revised global indicator framework in its entirety, and, of direct implication to the WGGI, encouraged further work on better integration of geospatial and statistical information to better monitor the 2030 Agenda through the WGGI.

To summarise the agenda item, Ireland noted that while the IAEG-SDGs needs the WGGI to provide insights and guidance to countries, this does not have to explicitly support the SDGs directly. Still, through illustrating the use of geospatial information, the strengthening of geospatial capacity within countries would be achieved, which in turn would directly support the attainment of the SDGs. Ireland noted that there is an important and urgent need for the WGGI to provide mechanisms that raise communication of best practice and support the use of geospatial information to inform all relevant SDGs, instead of focusing on specific indicators. While 2-3 indicators can provide examples, the WGGI's work should illustrate how geospatial information can highlight either indicator disaggregation at the national/sub-national level for national, regional and international purposes. Moreover, the WGGI could consider how guidance for developing global indicators, as there are definite commonalities between the WGGI and other working groups of the IAEG-SDGs, including its Working Group on Disaggregation. This guidance does not need to

be too detailed or technical but should provide a high-level overview for countries to develop indicators with geospatial information. This guidance could be complemented by referencing comprehensive technical approaches and methodology, to optimise the guidance provided to the average, non-technical user, such as a statistician, not a geospatial expert. The WGGI concurred.

Agenda item #4
Setting the scene: Perspectives from the Custodian Agencies, IAEG-SDG co-Chairs and UN Secretariat
Moderator: Mr Mark Iliffe, UN Secretariat

This agenda item provided the WGGI mechanisms to identify the needs and working methods of custodian agencies to deepen engage and contribute to their work.

UNFPA provided an overview of their priority indicators, stressing their role to support member states to monitor the SDGs with the census. Following their research, population data is required for 105 of the 232 indicators (~45%). They highlighted the nature of the custodian agency, noting that the share custodianship with other agencies for many of the indicators; meaning that it is necessary to look at the indicators as a package, not individually. UNFPA reinforced this by noting that due to the data needs of the indicators, the integration of many forms of data is essential; therefore, consistent geographies are needed. UNFPA is producing a platform to create a "national population platform" to link, disseminate data. The ensuing discussion included:

- Ireland considered the development of the UNFPA national population, noting that there is an opportunity to leverage synergies with the ongoing development of the Federated Information Systems for the SDGs platform.
- Further to this, Ireland queried about the replicability of the maps as presented and whether countries could replicate these maps, or whether UNFPA is required to publish maps and data on behalf of countries; and,
- UNFPA noted that the core development objective of the "national population platform" is to enable the sharing of population data from the census; and stated that UNFPA has the aim to build capacity for countries to develop and produce maps and maintain national portals, this will include documentation in time. They are working towards completing the development on their national population platform with an intended release date of " this year" (i.e. 2020).

FAO provided an overview of their partnerships, with academia and the European Space Agency and detailed their portfolio of ongoing projects. FAO envisions a future where data from EO producing entities is analysed and provided to in-country teams, through dashboards by a cloud platform. This could also enable and foster collaboration with end-users and to enable end-users to contribute information. FAO is developing methodologies and supporting countries to report on the SDGs. To close, FAO provided an overview of the indicators which they are the custodian for, noting that it should be possible to disaggregate by geography, socioeconomic factors, or by techniques. The ensuing discussion included:

- Colombia queried the availability of documentation that could be used to replicate the outcomes achieved by FAO, including the mechanism of production, source, and accuracy of results;
- In response, FAO noted that documentation will be available through the UN Global Platform to support reuse and that they work in partnership with in-country data holders to ensure that countries they have control of data and the sharing of its outputs. Moreover, FAO works with historical data to cross-check and establish accuracy.

UN Environment (UNEP highlighted that without geospatial information, it is impossible to understand the challenges facing ecosystems or the relationships between the environment and people. UNEP is the

direct custodian of 25 indicators, but also assists other custodian agencies, as noted by UNFPA. UNEP encourages the use of globally available environmental data to enhance country-derived data, filling data gaps and enabling countries to accelerate their progress towards achieving SDG targets, regardless of capacity. UNEP highlighted the complex nature of the data needed to produce their indicators, drawing on scientific data sources (e.g. to provide data on eutrophication). Moreover, the ability to compare across countries is challenging with many countries not having data. UNEP is partnering with the European Union's Joint Research Centre, NASA, GEO, and ESA to receive free and open data on the environment. The ensuring discussion noted:

- The Secretariat observed that there are commonalities with the approaches in the development of various indicators, this was echoed by Ireland, which stressing the commonality of the strategies undertaken in presentations so far, noting that SDG 6.6.1 has been independently mentioned twice, posing the question to the WGGI: "*Is there an opportunity to use the WGGI as a coordination and communication mechanism?*" UNEP noted that the development of indicators does not occur in isolation.

UNAIDS provided an overview of their work in collecting and disseminating data and statistics on the global prevalence of Aids and HIV, highlighting the use of global geospatial information products. UNAIDS detailed comparisons with official datasets and global datasets. Their findings highlighted a need for standardised data sources (boundaries and population); the possibility of extending the approach /tools and model to other areas of interest; and when global products are used guidance on strengths and weaknesses and impact on the outputs.

The UN Secretariat summarised the agenda item, and noted that within each of the presentations, there were several commonalities across the custodian agencies that presented, including the need for integrated statistical and geospatial information; the opportunity for the WGGI to support the coordination of activities to ensure that efforts are not being duplicated (namely, what are the relationships between the FIS4SDGs, UN Global Platform, and the UNFPA national population platform?); and, the nature of the technical work that currently underway demonstrates a great opportunity in using geospatial information to derive indicators. However, due to the technical complexity of the work, the outputs and process are often hard for a non-expert to understand.

Agenda item #5
National experiences and good practice in visualising, disseminating and monitoring SDGs
Moderator: Ms Paloma Merodio, co-Chair of the WGGI

This agenda item provided the WGGI to inform themselves on national and regional level experiences, guidelines and best practices in the use and production of geospatial information in visualising, disseminating and monitoring SDGs. The agenda item considered presentations from invited technical experts and the WGGI's members. Presentations included:

- Ms Andrea Fernandez, an invited technical expert of INEGI, Mexico, detailed their methods of integrated statistical and geospatial information production. These methods included standardising the production of statistical information and highlighting challenges of geocoding and georeferencing and ensuring consistent production of metadata. This has considered stages that move from 'silos' through to a 'geospatial network' where geospatially enabled statistics are available to all that need it;
- ECLAC provided an overview of their regional activities on statistical and geospatial integration. This included offering support to capacity development and developing roadmaps for statistical and

geospatial integration. This uses the GSGF as the basis to support the production and dissemination of geospatially enabled statistics. In detailing the regional SDGs knowledge platform, ECLAC illuminated how they are supporting the collection and dissemination of SDG indicators. Italy in response offered to share good practices with ECLAC. In the discussion, Ireland commended this, noting that the IAEG-SDGs is seeking to highlight cooperation and good practices;

- Italy provided an overview of their national SDG experiences, highlighting the several national actors who contribute data to derive SDG indicators. Subsequent contributions detailed the various disaggregations that they provide, whether it is by gender or geography and how they report and monitor indicators. In the discussion, Mexico commended Italy's work on disaggregation and the importance of disaggregation to the IAEG-SDGs. Italy responded that they are working to produce subsets of indicators at provincial levels, using EO data from the Copernicus programme, allowing insights at the commune level. Ireland also highlighted the importance of small area statistics to place a 'geospatial lens' below a regional level.

- Niger presented on their national experiences on developing a Geographic Information System in each region of the country to centralise socio-economic and environmental information and is currently at the pilot stage in one region, hosted by the NSO. In the discussion, Colombia queried the relationship between the statistical office and the national geospatial agency. Niger responded that they have a national geospatial information institute that collaborates with a Non-Governmental Organisation (NGO);

- Colombia provided their national experience in detailing where they are using geospatial information to derive indicators and highlighting the technical systems used to collect, analyse and disseminate indicators. They highlighted the challenges of needing up-to-date census information, georeferenced data, the need to integrate data from other sources (such as the amount of open public areas in cities – SDG indicator 11.7.1), that would not be considered 'official'. Colombia stresses the importance of geospatial information to derive indicators, noting there are issues with ensuring that 'official' data is used. In the ensuing discussion, FAO queried the process of using geospatial information, using an approved methodology by the custodian agency, and whether there are obstacles towards using the outputs nationally. Colombia notes that with new methodologies, there may be issues with the availability of data at the national level. Moreover, Indonesia queried the relationship between national institutions to produce integrated data. Colombia responded that there are sections in both the NSO and the NGIA that collaborate on this;

1. Ms Celine Jacquin, an invited technical expert of INEGI, Mexico, focused on the role of the NSO to collecting data towards supporting the development of methodologies to support national development and global agendas, such as the SDGs. This highlighted the use of machine learning and non-official data and INEGI's role to convene colleagues to develop methodology and to support advocacy and awareness efforts. In the discussion, Ireland commented that there is an opportunity to learn from this experience within the WGGI and UNEP opined that by creating the demand and communicating the potential of geospatial information it is possible to further institutionalize geospatial information to produce indicators;

- Ireland provided their national experience, using the Generic Statistical Business Process Model to produce indicators, so far over 100 datasets have a geospatial component with all data freely available through the FIS4SDGs and through other free platforms. The FIS4SDGs is the main platform that allows users to access SDG indicator information nationally across Ireland. The need to communicate outputs is provided through "storymaps" that detail a narrative on a specific SDG and/or theme; it is also possible to explore data by SDG. Ireland focuses the governance of the SDG platform and activities that provide a mechanism to raise awareness of the outputs of the FIS4SDGs, developing official reports on national progress, and to offer feedback from senior officials, decision- and policy-makers. This approach is also enabling the creation of indicators that exist outside the 232 indicators of the

global indicator framework, but are relevant at the national level, such as identifying drivers with driving penalty points. Ireland is also supporting global capacity development using open source tools to demonstrate the potential of visualization. The ensuing discussion included ECLAC querying on how to promote the participation of the geospatial side in these data governance boards. Ireland stressed the importance to be strategic and ensure the work that is being produced has an output that is useful to decision-makers. Ireland's experience has been to develop outputs that can be used for the VNR to communicate the importance of the SDGs to decision-makers. Ireland produced a storymap that highlighted important pieces of information. Finally, FAO queried the methodologies used for disaggregation of national figures, whether these were already available or other methods were used? Ireland responded that it was a mixed approach. A key part of the work has been to illuminate the potential of geospatial information to disaggregate at lower level geographies. Methodologies on disaggregation are available within the FIS4SDGs if the documentation is available;

- Namibia provided their national experience with developing their geospatial infrastructure. In this, they stressed the importance of coordination between the NSO and NGIA, to ensure geography is available. Namibia is disaggregating by geography at a sub-national level with the future requirement to develop its processes and practices so that geospatial information is available at lower level geographies. Areas of disaggregation which they are focusing on include National; Regional; Constituency; Rural/Urban; other available geographies; and other themes (such as gender). In focusing on geocoding with an x- and y-coordinate, the ability to aggregate to whichever output geography is required.

- Mr Abel Coronado invited technical expert of INEGI, provided an overview of their work to integrate EO with official statistics using machine learning in Mexico, through a pilot project with the United Nations Economic Commission for Europe (UNECE). The pilot project seeks to take advantage of the knowledge, data, and technologies available to show an example of the use of satellite images in the generation of geographic information that can be used to monitor the change in urban density and given the final product meets the appropriate quality, explore the path to incorporating it into the continuous urban monitoring processes of INEGI. In the ensuing discussion, Ms Paloma Merodio of Mexico stressed that the WGGI must consider how to provide guidance to the IAEG-SDGs (and by extension countries) on quickly replicable methods to develop internal capacity. The project as presented by the technical expert has taken 2 years to build this capacity, with a significant resource commitment and ECLAC highlighted the work of the EG-ISGI, including its Task Team on Capacity Building and urged the lessons learned to be shared these groups - this was acknowledged by the Secretariat;

- Mr Hugo Sanchez invited technical expert from INEGI, provided the national perspective of Mexico in classifying water from space, using an algorithm developed by Geoscience Australia. It has been possible to utilise the presented methodology to understand the water and river ecosystem and classify land accordingly, to provide this information to users at the national level, but also to derive SDG indicators. The work goes beyond establishing the simple extent of water bodies, but also are working towards making assessments of quality based on satellite information. In the ensuing discussion, Ireland commented regarding the step change within the statistics and the data. Mexico responded that the example presented was chosen deliberately, as the slow degradation of water extent and then the lake's recovery demonstrates a policy invention that has had a significant positive effect. Ireland noted the challenge within the statistical community to work with time-series data with the Secretariat requesting the WGGI to consider how it can offer guidance for countries without the same capacity. Mr Sanchez noted that there is still work that needs to be conducted on this, whereas Mexico stated that while the indicator is listed as Tier I, there is generally a challenge for countries to produce indicators, regardless of tier level. UNEP responded that there are two types of Tier I indicators, with a sub-indicator on the water quality of lakes and that it is working on a data collection

drive, noting that countries could be challenged to report due to a lack of data. This challenge is amplified as it is possible for a Tier I indicator to have global coverage, it does not mean that national coverage is present, noting that the local environment is highly dependent on the local context – further illuminating the need for guidance on disaggregation;

- Oman presented their SDG dissemination platform and their work on reporting the SDGs and stressed the importance of promoting their work, including developing communication tools, such as videos and reports[7] on each of the SDGs. This raises awareness across the country and has helped to identify and highlight the relationships between the SDGs to national directives and legislation. Oman demonstrated their national geospatial information portal "Omanuna". This offers mechanisms to update data at precise levels. In the ensuing discussion, Ireland noted that they had overcome similar challenges to Oman, sharing good practices is useful.

In the summarizing discussion, UNAIDS queried how the resulting complex information be used to inform decisions by policy-makers, with the Secretariat commenting that there are vast amounts of available historical data, such as Landsat. However, there is a fragile understanding of the broad statistical community of this opportunity. Whilst there is a clear need for the development of new data stream, tools and methodologies, there is a clear gap between the use of existing geospatial methods and data to derive official statistics. Namibia concurred and noted that there is a clear gap between countries that are developing novel methodologies and countries that are struggling to simply visualise and use collected data. Moreover, Ireland suggested that the WGGI could research methods of establishing tiers to denote capacity and capability. The Secretariat also noted that there is currently a shift within the HLPF reporting process, which places emphasis on Voluntary National Reporting (VNR) as an output mechanism. To close, the Secretariat suggested that the WGGI could consider what is needed for geospatial information to complement official statistics as an official data source to derive and inform SDGs?

Agenda item #6
Developing guidance for the IAEG-SDGs, custodian agencies and the broader statistical community
Moderator: Mr Kevin McCormack, co-Chair of the WGGI

This segment provided the WGGI with the opportunity to consider how best to develop guidance for the IAEG-SDGs. This was done through receiving a presentation by EO4SDGs on their progress in developing a toolkit and for Mexico reviewing the WGGI's prior work regarding the Shortlist.

EO4SDGs detailed the alignment of EO to the goals, targets, and indicators of the SDGs and introduced the concept of an SDG toolkit to coordinate and provide SDG indicators, using methodologies devised by custodian agencies. The toolkits aim to foster the availability and use of analysis-ready data and complement the availability of data that can be used to validate and provide reference datasets. The toolkit also contains country examples of how data is currently being applied. The ensuing discussion included Mexico noting the potential of understanding the work of EO4SDGs to ensure that work is not being duplicated and Ireland providing its national perspective of how it links with the regional (at the European level) and national environmental protection agencies. The WGGI agreed to highlight good cases and practices to inform for countries. Moreover, the WGGI agreed that through its coordination role, the WGGI could support the communication and translation of complex technical aspects of development into terms more easily understood by decision- and policy-makers.

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[7] Such as through their VNR: https://omanportal.gov.om/wps/wcm/connect/536f3c49-3397-4e62-b0a9-fd4eb4ab062a/SDG+VNR_New.pdf?MOD=AJPERES

Mexico provided an overview of the shortlist of geospatial indicators and then invited the WGGI to discuss their future, noting that they were produced in 2017. Ireland referred back to the guidance provided to the WGGI by the IAEG-SDG co-chairs, with ECLAC observing that there was a possibility of developing a "long list", that includes all the indicators that can be disaggregated by geographic location, then compile and link each of these identified indicators with exemplars of how geospatial information can be used to derive and disaggregate by geographic location (and other disaggregation generally) for these indicators. This approach would also enable the methodological work carried out by Custodian Agencies to be highlighted, ECLAC proposed that a first step could be to consider the work of EO4SDGs. UNEP opined that criteria could be developed by the WGGI, in part to further illustrate and assist countries in disaggregating by geographic location.

Following these contributions, the Secretariat summarised the session and urged the WGGI to consider the opportunities presented and to reflect in the WGGI's revised terms of reference. This was welcomed by the WGGI, with broad agreement to recommend existing frameworks, such as the Integrated Geospatial Information Framework and the Global Statistical Geospatial Framework as a starting point to providing the IAEG-SDGs with guidance to consider how to use geospatial information, EO and other new location-based data sources can reliably and consistently contribute to the production and dissemination of indicators.

Agenda item #7
Revising the Work Plan
Moderator: Ms Paloma Merodio, co-Chair of the WGGI

This agenda item enabled the WGGI to discuss its work plan[8] in detail and to consider revisions proposed by the co-Chairs and the Secretariat. It was agreed by the WGGI to segement their Work Plan into immediate and longer-term activites, with each activity aiming to set a clear direction for the WGGI's future work. Moreover, the WGGI noted it has reconstituted its membership, as requested by the IAEG-SDGs, therefore this activity is to be considered as completed and is removed from the Work Plan as it was presented at the 10th meeting of the IAEG-SDGs.

Following this, the co-Chairs proposed to breakout into two groups. Each group was requested to consider this revised Work Plan and provide their input and amendments. This was conducted for the WGGI to consider in-detail its Work Plan's Objectives and Tasks, then to progress to identify and prioritise work activites. The tasks are detailed within the Work Plan are:

1. Support the identification and sharing of common standards, national and regional experiences, good practices, and frameworks;
2. Showcase how geospatial information can contribute to the indicators and metadata;
3. Work in close cooperation with custodian agencies and other actors;
4. Review the agreed indicators and metadata; and,
5. Support efforts on data disaggregation.

The groups individually considered the activities needed to deliver on the terms of reference of the WGGI and its agreed tasks, suggesting refinements through open discussion. This also provided further opportunity to share country experiences, these experiences included Oman noting that they have reviewed the full indicator framework to identify potential sources of geospatial information to produce

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[8] Which was presented at the 10th meeting of the IAEG-SDGs in Addis Ababa

indicators, Indonesia's development of a 'Roadmap of SDGs in Indoneisa[9]", and further detail on how UNEP is working to support the methodological development of indicators amongst the detailed discussion on the Work Plan's activities.

At the conclusion of the breakout session, the WGGI reconvened. Through a rapporteur representing each group, the WGGI received a verbal report which provided overall comments on the Work Plan and discussed these in detail. The outputs of this discussion were noted and incorporated into the Work Plan by the Secretariat and the resulting Work Plan for 2020 – 2021 is annexed to this report. The activities of the revised Work Plan consist of the following:

Immediate Activities

For the immediate 6-month period following the tenth meeting of the IAEG-SDGs, the WGGI aims to:

1. **Review the 'shortlist' of SDG Indicators where geospatial information can contribute to the production of the indicator or its disaggregation:**

   - The original list of 24 indicators was developed in early 2017. The Tiers within the indicators have changed considerably since then, with many elevated from Tier 3 and Tier 2 to Tier 1; and

   - Review the list of indicators, including the noting the revised classification indicators, the updated indicator metadata, and the outcomes of the Work Stream on Disaggregation[10].

2. **Develop and provide guidance to the IAEG-SDGs regarding the outcomes of this review, towards developing a "long list" of SDG indicators:**
   - Elaborate on the revised short list to reflect the revised global indicator framework, prevailing good practices and updated metadata; and,

   - Identify key indicators, where geospatial information can inform the production of global and national indicators.

3. **Strengthen communication and coordination within the international statistical and geospatial information communities and the IAEG-SDGs:**

   - Develop a communications and coordination mechanism for the WGGI to showcase its work;

   - Promote national, regional, and global efforts for the calculation of SDG indicators using geospatial information, and participate where resources and capacity allow;

   - Engage in efforts to integrate and raise awareness of knowledge related to the WGGI's specific tasks, work, and outcomes;

   - Develop *story telling documents*[11] that detail 2 - 3 indicators, identified as part of the outcomes of III.2, to better visualize, communicate, promote and disseminate progress of the work of the WGGI as widely as possible; and

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[9] https://www.unicef.org/indonesia/media/1626/file/Roadmap%20of%20SDGs.pdf

[10] https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-09/BG-Item3a-Data-Disaggregation-E.pdf , table 1

[11] These story telling documents could be through Storymaps, such as those developed by Ireland's GeoHive (https://irelandsdg.geohive.ie) including its Voluntary National Review (https://irelandsdg.geohive.ie/app/ireland-voluntary-national-review-2018) or Mexico's Storymap "Breaking the poverty chains and bringing out untapped potential" (https://arcg.is/Kyb8y)

- Consider work items or tasks commissioned by the IAEG-SDGs, and means to work with custodian agencies, particularly in the methodological aspect.

4. **Capability inventory:**

- Consider, review and document types of processes and methodologies that provide real world examples and proven practices in applying geospatial information and Earth observations to produce indicators; and
- Propose recommendations to the IAEG-SDGs of cases which highlight real world examples and proven good practices.

Longer-term Activities

Over the longer-term, following the initial 6 months of activities detailed above, the WGGI will aim to:

5. **WGGI SDGs Geospatial Roadmap:**

- Develop a WGGI '***SDGs Geospatial Roadmap***' as a strategic information and communications mechanism that 'builds the bridge' between the statistical and geospatial actors working within the global indicator framework;
- A vision is to see geospatial and location-based information being recognized and accepted as official data for the SDGs and includes key strategic messages and facts;
- Key Question: Who do we do this with and for? Who is the audience? IAEG-SDGs, which then captures the custodian agencies and Member States. Targeted at key stakeholder engagement and understanding. What is our role, is it in coordination of the geospatial aspects for the IAEG-SDGs?
- Develop 'story-telling' mechanisms to better visualize, communicate, promote and disseminate progress of the work of the WGGI as widely as possible; and
- Enhance the awareness of geospatial information and Earth observations, and related data products and tools that can inform the SDGs through its indicators.

6. **Interlinkages among relevant groups:**

- Identify and foster key interlinkages among relevant groups. Reach out to and initiate virtual meetings with co-chairs/principals of groups to identify interlinkages between relevant aspects of the work items of various entities within the statistical and geospatial community. Groups may include the Global Working Group on Big Data for Official Statistics, UN-GGIM: Europe, GEO (EO4SDGs), and other relevant groups – for example the EG-ISGI;
- Reach out to the IAEG-SDGs work stream on data disaggregation to support the available and required disaggregation dimensions and categories for the global indicator framework – specifically for those indicators related to disaggregation by geographic location. This will be conducted through proposing a quarterly meeting between the WGGI co-chairs and the IAEG-SDGs' work stream on data disaggregation group.

7. **Toolkits and methodologies:**

- Showcase proven toolkits and agreed methodologies, including tutorials and real-world examples, that will support Member States to improve their application of geospatial information and Earth observations for the production of indicators; and,
- Consider work items or tasks commissioned by the IAEG-SDGs, and means to work with custodian agencies, particularly in methodological aspects.

8. **Guidance and recommendations:**

- Develop guidance and recommendations for the IAEG-SDGs regarding the use of proven toolkits (including the GEO EO4SDGs Toolkits) and frameworks (including the Integrated Geospatial Information Framework (IGIF) and the Global Statistical Geospatial Framework (GSGF), among other relevant frameworks) to demonstrate how they relate to the development and use of geospatial information for the production of indicators;

- Identify 4-5 cases studies where SDG indicators derived from geospatial information have been used to support policy and decision making;

- Enable broad consultation and promotion of the outputs of the WGGI, while ensuring the needs of the IAEG-SDGs are being achieved and communicated; and

- Consider the challenges in understanding and use of "official and non-official" data.

The WGGI agreed with the refined Work Plan. The WGGI also noted the considerable challenges posed by the Covid-19 pandemic, that as a priority, it would seek to establish responsible members for each of these identified activities and build on the work achieved at its meeting and to also circulate the Work Plan to the IAEG-SDGs for their endorsement. Furthermore, the WGGI agreed that the co-Chairs of the IAEG-SDGs would be invited to its future virtual meetings and that an informal meeting would be proposed on the margins of the 11th and next meeting of the IAEG-SDGs, which is planned to be convened in November 2020 in Mexico.

Agenda item #8
Revising the Work Plan
Moderators: Mr Kevin McCormack and Ms Paloma Merodio, co-Chairs of the WGGI

Bringing the meeting to a close, the co-Chairs summarised the meeting and thanked the members of the WGGI and invited participants for their valuable contributions. The participants offered thanks to INEGI, Mexico, for their hospitality and for hosting the meeting. The meeting adjourned with the final remarks of the co-Chairs. These remarks stressed the importance of geospatial information to the SDGs and urged the WGGI to consider that while a workplan has been formulated, the coming year will require strong commitment and continued engagement for the collective vision and objectives of the WGGI to be realised.