
Report

55th Executive Committee Meeting

Teleconference, 6-7 July 2021

<i>As accepted at the 56th Executive Committee Meeting.</i>
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EXECUTIVE SUMMARY

Chair: Patrick Child, European Commission.

1 SESSION 1: GENERAL BUSINESS AND PROGRESS REPORTING

1.1 Welcome from Lead Co-Chair and Co-Chairs, Secretariat Director

Outcome: The Executive Committee welcomed Yana Gevorgyan as the new Secretariat Director.

1.2 Adoption of Agenda (Document 55.1 – for decision)

Outcome: The Executive Committee adopted the agenda as distributed.

1.3 Lead Co-Chair Goals and Objectives (Document 55.4 – for information and Document 55.5 – for discussion)

Outcomes: The Executive Committee:

- Congratulated the Secretariat Director on a smooth transition;
- Took note of the Secretariat Operations Report;
- Emphasized the importance of further engagement with GEO Members;
- Welcomed the proposal of the Director to prepare a new Concept of Operations document;
- Expressed their satisfaction with the progress made by the Pacific Islands Advisory Group (PIAG); and
- Looked forward to delivery of substantive results from the PIAG in time for GEO Week 2021.

1.4 Report of the Mid-Term Evaluation Team (Document 55.6 – for discussion)

Outcomes: The Executive Committee:

- Expressed its appreciation to the Mid-Term Evaluation team for their excellent work, especially considering the difficult conditions imposed by the pandemic;

- Agreed that the report identified many key themes and opportunities for GEO to define its future directions;
- Welcomed the proposal from the Secretariat to undertake an analysis of the report and to draft a possible response from the Executive Committee to the evaluation recommendations; and
- Created an Evaluation Response Advisory Group (ERAG), to be composed of nominees from Executive Committee members, to work with the Secretariat to prepare the Executive Committee response to the evaluation recommendations for presentation to the GEO-17 Plenary.

Action 55.1: Executive Committee members to nominate individuals to serve on the ERAG. **Due: 16 July 2021.**

Action 55.2: Secretariat to convene the first meeting of the ERAG. **Due: before the end of July 2021.**

Action 55.3: ERAG to send a first draft response report to the Executive Committee for comment. **Due: mid-September 2021.**

Action 55.4: GEO Co-Chairs to prepare a letter to thank the Mid-Term Evaluation team for its work. **Due: mid-July 2021.**

2 SESSION 2: 2020-2022 GEO WORK PROGRAMME

2.1 Report of the Programme Board (Document 55.7 – for information)

Outcomes: The Executive Committee:

- Thanked the members of the Programme Board for their efforts in guiding the GEO Work Programme, noting that the Board is working very effectively and efficiently;
- Welcomed Evangelos Gerasopoulos as Programme Board co-chair;
- Indicated their interest in hearing about progress in the various Working Groups and Subgroups; and
- Encouraged the Programme Board to proceed to address the GEOSS infrastructure in a concrete way at its 21st meeting and looked forward to seeing the report from that discussion.

2.2 GEOSS Infrastructure and Next Steps (Document 55.8 – for decision)

Outcomes: The Executive Committee:

- Congratulated the GEO Knowledge Hub (GKH) team on the progress that has been realized thus far;
- Endorsed continued development of the GKH to complete its planned functionalities, up to the GEO-17 Plenary;
- Noted outstanding questions for the GKH on scalability, open access policies, resource demands on the Secretariat, and future directions of the GEOSS infrastructure as a whole, among others;
- Deferred decisions regarding the future of the GKH beyond the development phase, pending a broader discussion of the GEOSS infrastructure as recommended by the Mid-Term Evaluation report;

- Thanked the Secretariat Director for beginning a discussion on the need to clarify the concept of GEOSS and on the future of the GEOSS infrastructure;
- Agreed that questions of GEOSS evolution will be addressed by the Executive Committee in the context of the response to the Mid-Term Evaluation; and
- Looked forward to reviewing the proposed concept from the GIDTT in response to the request from the Programme Board.

2.3 Report on the Climate Action Engagement Priority (presentation – Climate Change Working Group)

Outcomes: The Executive Committee:

- Thanked Sara Venturini and the Climate Change Working Group for their work and for the report;
- Looked forward to GEO's anticipated acceptance as an Observer to the United Nations Convention on Climate Change (UNFCCC); and
- Noted the appeal for support from GEO Members for GEO's Observer status and role within UNFCCC at the 26th Conference of the Parties.

3 SESSION 3: SYMPOSIUM AND GEO WEEK 2021

3.1 Outcomes from the GEO Symposium (presentation – Secretariat)

Outcomes: The Executive Committee congratulated the Symposium Subgroup for their organization of a successful GEO Symposium.

3.2 GEO Week 2021 (Document 55.10 – for discussion)

Outcomes: The Executive Committee:

- Thanked the GEO Week 2021 team for their work and expressed satisfaction with the progress in the planning;
- Welcomed the strong links to global policy agendas that are being developed in the programme;
- Noted the requests for delegation lists and official statements to be sent to the Secretariat; and
- Supported the proposal from South Africa regarding organization of an Industry Track to be held in conjunction with GEO Week 2021.

4 SESSION 4: ANY OTHER BUSINESS AND REVIEW OF ACTION ITEMS

4.1 Any Other Business

Outcome: The Executive Committee approved the following documents:

- Draft Report of the 54th Session of the Executive Committee (Document 55.2);
- Review of Action Items from Previous Meetings (Document 55.3); and
- Review of Applications for Participating Organization Status (Document 55.11).

Draft Report
55th Executive Committee Meeting
Teleconference, 6-7 July 2021

FULL REPORT

Tuesday, 6 July 2021

Meeting convened at 13:00

Chair: Patrick Child, European Commission.

1 SESSION 1: GENERAL BUSINESS AND PROGRESS REPORTING

1.1 Welcome from Lead Co-Chair and Co-Chairs, Secretariat Director

Patrick Child (European Commission), Europe Caucus Co-Chair, opened the meeting and welcomed Yana Gevorgyan as the new Secretariat Director, acknowledging the excellent work of the outgoing Director, Gilberto Camara. Mr Child noted that there were several important items for discussion at the meeting, in particular, the report of the Mid-Term Evaluation, which he said provides a useful picture of GEO's current challenges. He also drew attention to the discussion on the future of the GEO Knowledge Hub (GKH) and the Global Earth Observation System of Systems (GEOSS) infrastructure, which are at significant turning points. Finally, he noted the discussion on the preparations for GEO Week 2021.

Tang Xinming (China), representative of the Asia-Oceania Caucus Co-Chair, congratulated the Secretariat Director and said that he looked forward to where she will take the Secretariat in the coming years. He also congratulated the Programme Board on the successful GEO Symposium. Mr Tang drew attention to the Asia-Oceania GEO Workshop which will be hosted by China in July 2021, regretting that GEO colleagues are still not yet able to meet in person.

Mmboneni Muofhe (South Africa), Africa Caucus Co-Chair, welcomed the new Secretariat Director and said that he looked forward to working together. Mr Muofhe added his appreciation for the clear planning and objectives set out by the Lead Co-Chair. He noted that the Mid-Term Evaluation report will require some discussion to bring GEO back on track where needed and to realize the vision of GEO that was set out in the Strategic Plan. Mr Muofhe recognized the good work of the Programme Board and drew attention to the efforts of Regional Centre for Mapping of Resources for Development (RCMRD) in support of AfriGEO, including their recent webinar on accessing Earth observations and applications for health in Africa.

Steven Volz (United States), Americas Caucus Co-Chair, introduced new members of the United States delegation: Lawrence Friedl, Kerry Sawyer, and Neevy van Laningham. Mr Volz remarked that the role of GEO is critical to many current issues, including climate change, the economy, and the recovery from COVID-19. He also observed that the Mid-

Term Evaluation report will be instrumental in informing GEO's next decade and so there is a need to understand the report and what it says about GEO.

Outcome: The Executive Committee welcomed Yana Gevorgyan as the new Secretariat Director.

1.2 Adoption of Agenda (Document 55.1 – for decision)

Outcome: The Executive Committee adopted the agenda as distributed.

1.3 Lead Co-Chair Goals and Objectives (Document 55.4 – for information and Document 55.5 – for discussion)

The Secretariat Director presented the Secretariat Operations Report. She began by noting the recent arrival, in addition to her own, of Lauren Durieux (secondment from France) as coordinator for the Sustainable Development Goals (SDGs) engagement priority and of Rui Kotani (secondment from Japan) as coordinator for the Disaster Risk Reduction (DRR) engagement priority. Ms Gevorgyan also noted the departure of the previous Secretariat Director, Gilberto Camara. In response to the Executive Committee request at the previous meeting, the Secretariat has updated the webpage on the GEO community response to COVID-19 and will retain the link from the GEO homepage. Ms Gevorgyan then drew attention to Secretariat support for two recent events in the GEO community, the 13th Asia-Oceania GEO Symposium which was held online on 3-5 March 2021 and the publication of the report from the GEO Indigenous Summit, which was held on 5-7 December 2020. Regarding the engagement priorities, Ms Gevorgyan highlighted Secretariat support to the Climate Change and DRR Working Groups, as well as to the Programme Board Urban Resilience Subgroup which is actively working to implement the recently approved engagement plan for Resilient Cities and Human Settlements. Turning to the GEO Work Programme (GWP), Ms Gevorgyan noted several areas of Secretariat support including to the GEO Land Degradation Neutrality (GEO-LDN) technology competition to develop land use planning tools to combat land degradation, organization of a webinar on high resolution satellite data to address tropical deforestation, two webinars sharing results of projects supported by the GEO-Amazon Web Services Earth Observation Cloud Credits Programme, and the GKH webinar series. Ms Gevorgyan also Secretariat support to the launch of the new Urban Heritage Climate Observatory, in which the United Nations Educational Scientific and Cultural Organization (UNESCO) World Heritage Cities programme is a co-lead. She also noted Secretariat collaboration with the Open Geospatial Consortium on the development of standards for data cubes. Looking forward, Ms Gevorgyan highlighted the need to rebalance capabilities and efforts within the Secretariat to ensure that all of the Lead Co-Chair Goals and Objectives were being addressed, stating that several areas including GWP analysis and coordination, GEO Member engagement, capacity development, resource mobilization, and strategic communications were currently under-resourced. The Director proposed to revise the Concept of Operations (ConOps) document to put into effect this rebalancing.

The United States said that the work on the webinars and training was positive but inquired whether there were any measures of effectiveness being collected.

South Africa stated that the outreach to GEO Members must be targeted and there must be opportunity for them to provide relevant feedback.

Germany said that they are planning to send a Junior Professional Officer to the Secretariat for two years, with a potential start in early 2022. This position had originally been intended to support DRR but given the secondment from Japan it could be used to support urban resilience instead.

Australia welcomed the proposal for a revised ConOps document, suggesting that the Director work closely with the Lead Co-Chair in its development, noting the close resonance with the Goals and Objectives. Australia also requested more information on why the communications strategy was not working.

Ghana expressed the view that for GEO to be accessible to developing countries it must get buy-in from them. This will require rebalancing efforts in the Secretariat and a new strategy that focuses on impacts for developing countries.

Japan stated that the Secretariat needs to play a pivotal role in advancing GEO's priorities and to do this it must promote GEO achievements in international meetings such as the United Nations Framework Convention on Climate Change (UNFCCC) 26th Conference of the Parties (COP26).

China said that standards and standardization are the main concerns for developing countries and this should be key to GEO's work.

Peru indicated its interest in the GEOSS roadmap being prepared by the GEOSS Infrastructure Development Task Team (GIDTT), as well as cloud-based processing and data analysis, noting that these are important issues for developing countries.

France was pleased that the transition of Secretariat Directors had gone smoothly.

Chile advocated for continued promotion of GEO at the country level, even with the achievements through the Regional GEOs. The importance of simple messages for actors at the country level was emphasized and recommended that the Secretariat seek a greater presence among permanent missions in Geneva, as these serve as alternates for the capitals in their interaction with international organizations.

Greece said that the Secretariat needs to engage further with GEO Members, particularly on how to coordinate national systems, which may support more interconnections at the international level.

The European Commission said that they were very impressed with GEO support to the fight against the pandemic. They thanked the Programme Board for their contributions and noted the progress on urban resilience. The Commission said that they would be happy to work with the Secretariat to revise the ConOps document and on the future of GEOSS and its various components in the service of the GEO community.

The Secretariat Director reiterated her view that all mission areas of the Secretariat need to work in synergy: the science-based work, the work of interoperability, the outreach to stakeholders and decision makers, and the communication of GEO's work to them. She noted that being busy is not the same as being productive and cautioned that statistics do not always extrapolate to impacts. Regarding the revisions to the ConOps document, Ms Gevorgyan said that rebalancing does imply re-prioritizing, noting that a holistic review of the Secretariat positions had not been done at the time of the first ConOps. She noted also many remarks from Executive Committee members on stepping up engagement with GEO Members and that this should complement the Regional GEOs. She agreed with the

suggestion that the GEO presence with permanent missions should be increased. Overall, she said that she understood the reactions as positive and will work with the Lead Co-Chair on the revisions to the ConOps document.

The Chair then introduced the next item, the Report from the Pacific Islands Advisory Group (PIAG), which was presented by Emma Luke (Australia).

Ms Luke started by reviewing the activity in the PIAG since its last report (to the 53rd Executive Committee meeting). These included two meetings of the full PIAG membership and two co-lead teleconferences, as well as participation of PIAG members in various activities to promote GEO engagement with Pacific Island Countries and Territories (PICTs). The primary focus of the PIAG over the period, however, was the development of its work plan and a draft of the overarching engagement strategy, which is the key deliverable in the PIAG terms of reference. Ms Luke then presented the draft engagement strategy, describing how the various elements of the PIAG terms of reference are translated into proposed activities, which are expected to give rise to a series of specified outputs, which are in turn expected to yield a set of planned outcomes over the next five to ten years. She concluded by saying that the PIAG looked forward to comments from Executive Committee members and would incorporate this feedback into the next version of the strategy.

Australia congratulated the PIAG for their report and especially its fellow co-chairs of the PIAG, China and the Pacific Community. It was observed that the PIAG was taking a steady approach, consistent with what the PICTs had expressed at the Canberra meeting. The impacts of the pandemic on the process were also noted, especially given the importance of face-to-face contact in the region.

China thanked Ms Luke for her clear presentation and thanked the PIAG for its fruitful and productive work. Regarding the working process of the PIAG, China requested that the PIAG provide an update to each Programme Board meeting, noting that no report had been given to the May meeting. China stated that they looked for tangible products from the group in future.

France stated that they were pleased that the group has come up with recommendations and hoped that the proposed actions can be implemented. They observed that the work was on a good track, noting that there was still much to do.

Germany questioned whether the engagement strategy might offer a potential model for the engagement of other small island developing states (SIDS). Regarding the reference to the Chinese high-resolution satellite data in the work plan, Germany suggested that there be a more comprehensive list of available satellite data for the area be compiled.

The United States stated that the PIAG had done excellent work, noting the engagement strategy. It drew attention to the findings of the Mid-Term Evaluation regarding the need to improve outreach in regions beyond Europe and North America.

Ms Luke responded to Germany that, while it would be beneficial to engage the SIDS more generally, this task would be more than the PIAG could handle. The PIAG is building on relationships with the PICTs that had been established before COVID, which enabled the PIAG to make progress. A broader strategy for SIDS could be developed based on the work of the PIAG once it is a little further along. Regarding the concerns raised by China on reporting to the Programme Board, she said that this is an ongoing discussion, and that

Australia will work with China to improve reporting processes, noting that the Programme Board interlocutor with PIAG is a Programme Board co-chair.

Outcomes: The Executive Committee:

- Congratulated the Secretariat Director on a smooth transition;
- Took note of the Secretariat Operations Report;
- Emphasized the importance of further engagement with GEO Members;
- Welcomed the proposal of the Director to prepare a new Concept of Operations document;
- Expressed their satisfaction with the progress made by the Pacific Islands Advisory Group (PIAG); and
- Looked forward to delivery of substantive results from the PIAG in time for GEO Week 2021.

1.4 **Report of the Mid-Term Evaluation Team (Document 55.6 – for discussion)**

Justyna Nicinska, chair of the Mid-Term Evaluation (MTE) team, presented the report on behalf of the team. She began by noting the broad geographic distribution of the team members and the invaluable contributions of Chiara Caimi and Samantha Reeves who provided analytical and administrative support. Ms Nicinska reviewed the terms of reference for the MTE, which had been set by the Executive Committee. These terms of reference focused on the implementation of the 2016-2025 GEO Strategic Plan and the priorities identified in the Mexico City Declaration. Ms Nicinska also reviewed the methodology of the evaluation, including review of key documents, interviews, surveys, and case studies. Following an initial analysis of the collected data, the team had identified six focus areas that would collectively address the key evaluation questions that had been posed by the Executive Committee. These focus areas are:

- The GEO Organizational Model;
- Policy and Users Interface;
- Interoperability (including both organizational and technical);
- Regional GEOs;
- Private Sector; and
- The GEO Trust Fund.

Ms Nicinska described the focus areas in turn and explained the evaluation findings and recommendations of each. She concluded by summarizing that GEO has demonstrated success in convening and facilitating interactions among key stakeholders in the Earth observations field; GEO has promoted opportunities for data sharing and service delivery; and it has promoted opportunities for cooperation among key stakeholders and across the Earth observations value chain. Areas for future improvement include: clearly defining high-level priorities to guide GEO's work; reassessing the concept of GEOSS and its evolution; and better defining GEO's value proposition and communicating it.

The Chair thanked Ms Nicinska and rest of the MTE team. He noted that the evaluation covered the ground in a thoughtful and comprehensive way, providing an excellent platform from which to think about the future development of GEO. The report was particularly timely given the change in leadership in the Secretariat. He suggested that Executive Committee members provide some initial reactions and comments and then agree on a way ahead to take ownership of how to take it forward.

The United States echoed the Chair's comments, saying that the evaluation was comprehensive, both broad and deep, and requires thoughtful consideration. The major outcome will be how the Executive Committee will address the findings. It was noted that it is important to decide on a response, at least an initial one, in anticipation of Plenary. To do this, it was suggested that the Secretariat be tasked to prepare an initial draft, including a point-by-point assessment. Two key cross-cutting themes were the need for a clear value proposition and the concept of GEOSS. GEO is in a very different environment now than when it started, with many new groups playing in the same space. How should GEO work with others in the same domain? It is necessary to understand the ecosystem of Earth observations now, to be responsive, but there still remain areas where GEO is unique. The Executive Committee needs to provide an initial response to the GEO membership that they can embrace and support.

South Africa stated that the report was thorough and well-thought through. They also agreed with the comments from the United States on finding a way to respond. The report gives GEO a mirror in which we can look at what we have done over the past few years. It is important that GEO not lose ground in achieving the goals of the current ten-year plan. GEO's response to the evaluation needs to be clear that the findings will be acted upon, not just doing the evaluation for the sake of doing it.

China said that the findings were significant and that the needs of the GEO community must be better communicated so they may be addressed. China emphasized the roles of the global, regional, and national-level GEOs. GEO services need to be trustworthy and reliable. GEO also should provide guidance to the development of national and regional GEOs.

Australia expressed the view that the MTE report showed the professionalism of the team at the highest level. The findings regarding small, medium and micro-sized enterprises (SMMEs) were highlighted, saying that GEO will have impact when the private sector develops value-added services on top of GEO results. GEO needs to encourage SMMEs to flourish on the back of GEO, with support from GEO Members. Australia agreed with China that it will be important to get the most value out of the regional structures and to reflect on the nature of each Regional GEO. Since Asia-Oceania GEO (AOGEO) includes over 60% of the global population, it is not realistic to expect that the Regional GEO will be closer to users. Countries should not be locked into a regional structure; their participation should be voluntary. It may also be necessary to question the location of the Secretariat. COVID-19 has shown the viability of other forms of organization.

Japan observed that the MTE report made a comprehensive assessment of the past five years, both achievements and challenges. It provides important findings and recommendations. Japan agreed that the Executive Committee should take the findings into future planning and should share the same understanding of how the recommendations should be addressed. Some may be addressed immediately, while others may need long discussion, even until the next strategic plan. It was suggested that the Secretariat prepare a simple list of which recommendations can be addressed within the current strategic plan and which ones should be discussed as part of the next strategic plan. In this way, the MTE results can feed into future planning.

Chile noted that GEO is currently in version 2.0 and is now thinking about GEO 3.0. It will be important to prioritize the recommendations; which items may be done now and which ones in 2025. This work must be inclusive of regions, large and small countries, science

and policy, users and providers. It is difficult to give a single answer to what are the needs of a country; there are competing needs. These differences make it difficult to design GEOSS.

Germany stated that it was important for the Executive Committee and the Secretariat to have these findings. They were pleased to see that GEO is effective and is meeting its objectives. The report showed that there is potential for improvement, and this was expected. The review of GEOSS is welcomed by Germany.

Peru said that the report was important as a guide for high-level priorities in GEO. They stated that they had learned a lot in GEO and have seen a clear change in how public agencies are using satellite information. However, it is time to give users not only data and training, but also advanced tools to use the data, referring to the experience with participating in a hackathon.

The IEEE Geoscience and Remote Sensing Society (IEEE-GRSS) noted the rapid changes recently in Earth observation analytics. It is key for organizations to continually reassess how they can remain relevant. Many key themes and connections were apparent throughout the report.

The Chair briefly drew together the comments, noting several common themes. There was an emphasis on the value proposition, setting priorities, and the relations with other international organizations. It is important to maintain the relevance of GEO's work to all of its Members, to engage in outreach with the whole community, and to re-examine the role of the Regional GEOs. It is also necessary to revisit the concept of GEOSS, has it kept pace with global developments and how to build on the GKH and other parts of the infrastructure? Engagement with the commercial sector has seen progress with the big players but there is a need to be relevant to the full range of potential partners. The MTE report provides an historic opportunity to take ownership of GEO's future directions.

The Secretariat Director noted the confluence of sentiments and observations from the previous session and this one. As the responses to the report are prepared, there are a number of opportunities. First, the next year will mark the final instalment of the GWP in this strategic plan cycle. The Secretariat intends to work with the Programme Board to address some aspects in this round. Second, there will be upcoming work to set out a new vision for GEO 3.0. This will provide a chance to address the value proposition. Work on this new vision will begin in September, to be presented to the Plenary in November. Third, there are opportunities in the Working Groups; the report will provide a sense of urgency to accelerate some of their deliverables. The Director suggested that the Executive Committee consider a "sprint" toward the end of the 10-year plan. In tactical terms, the Secretariat is ready to support the Executive Committee in preparing a response to the evaluation. It will prepare an analysis of the report and what we have to work with. It was also proposed that the Executive Committee set up a diverse group among its members that can work with the Secretariat to review the Secretariat proposals. The Director recommended a first meeting of this group before the end of July, and to then reconvene in September. The proposed response could then be shared with the full Executive Committee in mid-September for a round of feedback. This would enable a document to be prepared for early to mid-October.

The United States added that the MTE report pointed out the need for inclusiveness and thus the response should involve not just GEO Members, but also Participating Organizations, the commercial sector, non-governmental organizations, and others.

Outcomes: The Executive Committee:

- Expressed its appreciation to the Mid-Term Evaluation team for their excellent work, especially considering the difficult conditions imposed by the pandemic;
- Agreed that the report identified many key themes and opportunities for GEO to define its future directions;
- Welcomed the proposal from the Secretariat to undertake an analysis of the report and to draft a possible response from the Executive Committee to the evaluation recommendations; and
- Created an Evaluation Response Advisory Group (ERAG), to be composed of nominees from Executive Committee members, to work with the Secretariat to prepare the Executive Committee response to the evaluation recommendations for presentation to the GEO-17 Plenary.

Action 55.1: Executive Committee members to nominate individuals to serve on the ERAG. **Due: 16 July 2021.**

Action 55.2: Secretariat to convene the first meeting of the ERAG. **Due: before the end of July 2021.**

Action 55.3: ERAG to send a first draft response report to the Executive Committee for comment. **Due: mid-September 2021.**

Action 55.4: GEO Co-Chairs to prepare a letter to thank the Mid-Term Evaluation team for its work. **Due: mid-July 2021.**

Meeting adjourned at 16:00

Tuesday, 6 July 2021

Meeting convened at 12:00

2 SESSION 2: 2020-2022 GEO WORK PROGRAMME

2.1 Report of the Programme Board (Document 55.7 – for information)

Andiswa Mlisa (South Africa) presented the Programme Board report on behalf of the Programme Board co-chairs. She began by reviewing how the Lead Co-Chair priorities are being addressed in the Programme Board work plan, including through its subgroups and through the Foundational Task Working Groups. In particular, the Programme Board is closely following developments related to the in situ data strategy. Ms Mlisa requested that the Secretariat take note of the Programme Board request for greater communication with GEO Members and Participating Organizations, especially regarding decisions and guidance from the Executive Committee. She also noted the ongoing challenge of engaging developing countries in the GWP. Ms Mlisa then reviewed some of the key outcomes of the 20th Programme Board meeting. Digital Earth Africa was approved as a GEO Initiative. The Board reviewed the experience with the engagement team process, agreeing that it was valuable and that it should be renewed following the development of the 2023-2025 GWP. The Programme Board devoted considerable time at its 20th meeting looking at the GEOSS infrastructure. It endorsed the continued development of the GKH toward operational status, subject to Executive Committee approval of Secretariat resources for this purpose. On the GEOSS Platform, the Board requested that the team proposed additional metrics that are more focused on users. Considering GEOSS infrastructure evolution, the Programme Board observed that the planning for this evolution was still at an early stage, lacking clear definition of the intended users and uses, and there was as yet no agreed concept for building connections between the GEOSS Platform and the GKH. The Board emphasized that any future governance structure for the GEOSS infrastructure should be enabling and supportive of GWP activities. The GIDTT was requested to prepare a document for the 21st Programme Board meeting that would describe the proposed concept for the next phase of the GEOSS infrastructure, including a timeline and an estimate of resource requirements. Turning to the reports of the Programme Board subgroups and Working Groups, the Board noted the challenges arising from the regional imbalance in the Data Working Group and its subgroups and recommended that the Data Working Group consider identifying data gaps and barriers to data sharing, as well as issues of data democracy. The Board also recommended that the planned survey include more of a user focus and that the Data Working Group consult with Regional GEOs regarding their perspectives on its work. On the Awards Subgroup, the Programme Board agreed to proceed with the individual awards for 2021, pending the development of a group award, and that the Awards Subgroup engage the Equality, Diversity and Inclusion Subgroup, as well as the Regional GEOs, to help increase the number and diversity of nominations.

The United States observed that there were many themes from the Programme Board discussions that connected with the MTE report. It was noted that the Programme Board is functioning effectively and efficiently, and the United States looked forward to the Board's specific contributions to the GKH and GEOSS infrastructure topics.

France asked a question concerning the users of the GEOSS Platform. Ms Mlisa responded that the GEOSS Platform team has undertaken activities to engage users but there is a lack of useful metrics to understand who is using the Platform and their level of satisfaction.

China said that the engagement of developing countries is very important and that it appreciated the attention and support to this work by the Programme Board. Many developing countries are willing to share their data and GEO should let developing countries know what data are being shared and how they can be used. China was also happy to see that the Programme Board has requested that the GIDTT prepare a report on GEOSS infrastructure evolution, suggesting that the document be published after the next Executive Committee meeting. China also suggested that the MTE report be published so that GEO Members will be aware of the findings.

Japan thanked the Programme Board members for their hard work and contributions to GEO, noting the important role of the Board in connecting GWP activities to the GEO vision. Japan also thanked the Working Groups for their mapping exercise with the GWP and looked forward to seeing the results. Japan appreciated the Data Working Group, saying that the questions it is considering are essential for GEO's future. Japan encouraged close coordination among the Working Groups and with other groups in GEO.

South Africa took note of the discussion on Digital Earth Africa and its acceptance as a GEO Initiative, stating that the programme is important and relevant to users in Africa.

Ms Mlisa stated that the Programme Board would be interested in being engaged in the development of the response to the MTE report. The Board will also continue to follow closely the issues raised by the Data Working Group on data sharing and the needs of diverse communities. She also noted the challenges in supporting the breadth of activities in the GWP given the limitations of time of Board members.

Tony Milne (IEEE-GRSS), Programme Board co-chair, noted the importance of reviewing the requested GEOSS infrastructure evolution roadmap in relation to other Earth observation infrastructures currently operating.

Outcomes: The Executive Committee:

- Thanked the members of the Programme Board for their efforts in guiding the GEO Work Programme, noting that the Board is working very effectively and efficiently;
- Welcomed Evangelos Gerasopoulos as Programme Board co-chair;
- Indicated their interest in hearing about progress in the various Working Groups and Subgroups; and
- Encouraged the Programme Board to proceed to address the GEOSS infrastructure in a concrete way at its 21st meeting and looked forward to seeing the report from that discussion.

2.2 GEOSS Infrastructure and Next Steps (Document 55.8 – for decision)

The Secretariat Director presented an update on GKH implementation. She began by noting that the previous Executive Committee approval expired in June 2021, thus necessitating an extension if the work were to be completed. The Director reviewed how the GKH supports elements of the GEO strategic plan and several of the Lead Co-Chair Goals and reminded Executive Committee members of its purpose and intended users. In

terms of the status of the implementation, one of the two modules – that for information/knowledge search and retrieval – is fully implemented. The other module – for document submission – was delayed due to the impact of COVID-19 on the deployment of the underlying software. She stated that full implementation was expected to be completed by December 2021. Regarding the interactions between the GEOSS Platform and the GKH, the Director noted that the two systems address different needs and user scenarios and are based on different technologies. Discussions are underway between the two teams to implement connections that will allow, for example, users to find additional data in the GEOSS Platform that could be used with the tools in the GKH. Turning to the demand on GWP activities for contributing knowledge resources, the Director acknowledged that the process typically requires about one to three person-months to organize knowledge resources for inclusion in the GKH. However, as the Open Science principles and GEOSS Data Sharing and Data Management Principles are more widely adopted by the GEO community, this burden is expected to be reduced. She also stated that the ultimate aim is for the GKH to become predominantly community-driven and will foster active knowledge sharing forums between users and providers. The presentation concluded with a summary of the remaining steps for implementation and the resource requirements, both for the remainder of 2021 as well as for the ongoing maintenance and development of the GKH.

The Chair said that the Executive Committee appreciated the work of the Secretariat on the GKH over the past couple of years and that it was good to take stock of progress.

South Africa thanked the team for the presentation and said that it showed that there is no doubt that, when completed, the GKH will be a very powerful tool in providing the necessary services to demonstrate value to GEO Members. South Africa stated that it is crucial to ensure that the work is properly resourced.

The European Commission cautioned that, in addition to the time needed to create the knowledge packages, there can be a large burden for documenting data sets, as was shown by the experience with the INSPIRE Directive.

Germany stated that they support the general concept of the GKH and noted that it is proceeding in the right direction. There is a need to consider scalability, resource requirements, and the connection with the GEOSS Platform. Germany also noted that the system will require continuous updates, as well as interaction with users and providers. A continuing role for the Secretariat in operating a GEOSS infrastructure was questioned, stating that it has not had such a role previously. If this is to be done, the decision should be taken explicitly. Germany referred to the issues identified by the Programme Board with the GEOSS infrastructure and the proposal to develop a new Concept of Operations document. It would be better to have clarity on these issues before operating the GKH as an operational service. This is not to suggest stopping development of the GKH but highlighting the need for more clarity before moving to operations.

Peru observed that users and their problems need responses faster than before. It is not enough to deliver data; users need services and guidance also. Users trust in other users, and they want to be able to work together. It is difficult for users to articulate the required capabilities and it is not easy to work together with others; these are issues likely faced by other GEO Members. The GKH addresses these issues. It is important for countries like Peru who have developed some experience and want to share this with others.

Japan suggested that the Executive Committee take into consideration the relevant comments from the MTE report, particularly recommendations 6 and 7 and finding 8. Consider assessing the impact on the Secretariat and its other missions, noting the statement in the MTE report. If an operational strategy for the GKH is presented to the Executive Committee just prior to the GEO-17 Plenary, this would not leave enough time to decide, especially if additional resources would be required.

The United States concurred with the Secretariat recommendation to continue. It is important to learn about the challenges in working with GWP activities. The concern is with the need for continuous support and curation, including with the user community. The MTE report made it clear that the GKH, the GEOSS Platform, and other infrastructure are connected in many ways that are not immediately obvious. The United States noted recommendation 3 from the MTE report regarding the creation of an Expert Advisory Group to look at the whole of the GEOSS infrastructure. GEO should continue to move forward with the GKH as a pilot but look at how to make this a sustainable resource with the concurrence of the whole GEO community.

France congratulated the team, calling the work inspiring. Of course, there remain many questions to be answered, but perhaps these questions can be answered in parallel. It would be a mistake to delay the implementation of the GKH.

China stated that the GKH team has made great progress and that China endorses the GKH to go forward. It agreed that the GEOSS Platform and the GKH are two components of the GEOSS infrastructure and should be connected to one another. It would be too fast to make a decision at this time. It will be important to demonstrate the functionality to the Executive Committee and to GEO Members and users. After that, a strategy for moving to GKH operations should be developed. Further decisions should be deferred until November.

The Secretariat Director noted that the proposal will reduce the burden on the Secretariat from roughly five or six staff to only one person going forward, plus a consultant. She noted that it was still too early to demonstrate the capabilities to the GEO community because the implementation is still incomplete. Regarding engagement, this much first focus on the GWP community. The goal is manageable since not all GWP activities are yet at the stage of having knowledge packages. It is important that the results coming out of the GWP activities are consistent with open data and open science principles. It is not the software that will make or break the GKH concept, it will depend on the willingness of the GWP activities to share their results.

The United States asked for a scorecard on which GWP activities are complying with open principles.

The Secretariat Director then presented on GEOSS infrastructure evolution. She began by noting the related Lead Co-Chair goals, the outcomes of corresponding item at the 20th Programme Board meeting, and the relevant findings and recommendations from the MTE report. The Director suggested two options for addressing the issue. One option is to adopt the recommendation from the MTE report to create a diverse and inclusive expert group to deliberate the concept of GEOSS, the GEOSS infrastructure and its possible evolution. The second option is to proceed with the existing Programme Board action that requested the GIDTT to prepare a proposed conceptual framework for GEOSS infrastructure evolution.

The Chair thanked the Director, saying that the presentation framed the challenge very well. The remarks from IEEE-GRSS were also helpful. The Chair said that it was important to recognize that the MTE report encouraged GEO to take stock of the state of play of GEOSS. He noted that the presentation from the Director was focused on process rather than substance. Speaking from his position as representative of the European Commission, he noted that the Commission has made a considerable investment in the GEOSS Platform, and they need to know if they should continue to do so. There is no time for a long and drawn-out process. Still, the Chair agreed that it is important that the discussion include more than the usual players.

The United States noted that the GEOSS infrastructure is a major element of GEO and that they are not ready to jump into a solution that will take a long time to implement. It was recognized that the European Commission has a significant stake in the outcome. The GEOSS Platform came up in many places in the MTE report and is a fundamental part of the GEOSS infrastructure. They stated that the pros and cons chart presented by the Director should be taken into account. It should not be up to the implementers to tell GEO how the implementation is working. The best way to address this issue is through the response to the MTE. This is a fundamental question to address and will need to involve many interests.

China stated that the process needs to include people with a technical background on the team that looks at GEOSS. Requirements need to come from users. China suggested that the GIDTT have more engagement with users and with other communities. It should also engage the MTE team. GEO needs a clear concept of the future GEOSS, and once this concept is approved, a roadmap for its development should be prepared for consideration. Without a clear concept, any roadmap is a waste of time.

Outcomes: The Executive Committee:

- Congratulated the GEO Knowledge Hub (GKH) team on the progress that has been realized thus far;
- Endorsed continued development of the GKH to complete its planned functionalities, up to the GEO-17 Plenary;
- Noted outstanding questions for the GKH on scalability, open access policies, resource demands on the Secretariat, and future directions of the GEOSS infrastructure as a whole, among others;
- Deferred decisions regarding the future of the GKH beyond the development phase, pending a broader discussion of the GEOSS infrastructure as recommended by the Mid-Term Evaluation report;
- Thanked the Secretariat Director for beginning a discussion on the need to clarify the concept of GEOSS and on the future of the GEOSS infrastructure;
- Agreed that questions of GEOSS evolution will be addressed by the Executive Committee in the context of the response to the Mid-Term Evaluation; and
- Looked forward to reviewing the proposed concept from the GIDTT in response to the request from the Programme Board.

2.3 Report on the Climate Action Engagement Priority (presentation – Climate Change Working Group)

Sara Venturini, Climate Action Coordinator in the GEO Secretariat, presented the item on behalf of the Climate Change Working Group. She began by reviewing the structure of the

Working Group and its co-leads. In 2021, the Climate Change Working Group is planning its work around four key events: the 2021 GEO Symposium, the GEO Climate Policy and Finance Workshop (21-23 September), the UNFCCC COP26 (1-12 November) and GEO Week 2021 (22-26 November). Ms Venturini drew attention to the 15 climate-related sessions held at the recently completed GEO Symposium. She then described the plans for the GEO Climate Policy and Finance Workshop, the first event organized by the Climate Change Working Group. The theme of the Workshop will be “Earth observations for climate ambition” and is intended to support national climate action and the Global Stocktake under the Paris Agreement. The target audience for the Workshop includes the Earth observation community, policy makers, UNFCCC focal points, and the sustainable finance sector. The expected outcome will be a white paper for presentation at COP26. Ms Venturini then described the preparations for GEO’s participation at COP26 and its contribution to the Global Stocktake. COP26 should be a key milestone, with the expectation that GEO will be granted official Observer status with the UNFCCC. The Climate Change Working Group is implementing several tasks meant to position GEO strongly at COP26, including organizing a twinning programme to connect GEO representatives and UNFCCC focal points, preparation of a briefing note on GEO for national delegations, and guidance on how GEO can support the National Adaptation Plan (NAP) process. The Secretariat is also working with several GWP activities to facilitate their involvement in various Earth observation-related workstreams and events at the COP. Ms Venturini next described a workshop convened by the Secretariat and the GEO Global Forest Observation Initiative (GFOI), together with the United Nations Food and Agriculture Organization (FAO) and the Intergovernmental Panel on Climate Change (IPCC) Task Force on Greenhouse Gas (GHG) Inventories. IPCC invited GEO and GFOI to help support UNFCCC Parties in estimating their GHG emissions from the Agriculture, Forestry and Other Land Use (AFOLU) sector. The workshop demonstrated free and open-source software available for use through the FAO’s SEPAL Platform and launched a follow-up process to further operationalize the software. Regarding NAP guidance, the UNFCCC has asked GEO to provide guidance on how to incorporate Earth observation-based agricultural monitoring for adaptation, proactive response and enhanced climate resilience. GEO Global Agricultural Monitoring, building on the work already done for the GKH, and with the support of funding from the United Kingdom Department of Environment, Food and Rural Affairs (DEFRA), is developing knowledge packages that will provide countries with easy access to data and tools in a way that can readily be scaled up to support the least-developed countries. Ms Venturini concluded by requesting the support of Executive Committee members to mention GEO in their opening statements to the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA), to reach out to their UNFCCC focal points and delegations, and to indicate potential availability for Earth observation-themed side events at their country pavilions during COP26.

Australia remarked that the activities of the Working Group are very exciting. They noted the role of technology in helping to deliver on the Nationally-Determined Contributions (NDCs), saying that Earth observations is a critical part of the mix. The concept note for distribution to GEO Members was praised, suggesting that the earlier the note would be ready, the better. They drew attention to the “Space 4 Climate Action” concept being proposed by the United Nations Office for Outer Space Affairs (UNOOSA) and Austria, noting the potential overlap with more mature initiatives like GEO. The Chair responded

that he had also picked up on this but sees some promising links to work in Copernicus, Horizon Europe, and the European Union mission on climate adaptation.

Germany asked whether there is potential overlap in events with the Global Climate Observing System (GCOS).

France asked whether GEO could be part of the international charter with the Space Climate Observatory (SCO).

China stated that the Working Group report shows how GEO can contribute to the UNFCCC but asked how GEO can also demonstrate its capabilities at global, regional and national scales. What is the role of GEO with respect to GHG emissions? Most carbon data are collected from governments using a bottom-up approach, but GEO should show how carbon emissions may be monitored from space.

Japan said that they support the Working Group coordination of GEO and Earth observation contributions to UNFCCC agreements and the Global Stocktake. Regarding support to COP26, Japan would like to explore what it can do concretely, such as a pavilion.

The United States suggested that in the member statements at the COP, it is important to go beyond advocating for GEO as an organization; GEO should be seen as *the* venue for collaboration on Earth observations.

Ms Venturini noted the importance of seeing endorsements in the statements at COP26 and welcomed offers for pavilions and other support at the COP. She noted that the coordination group in the UNFCCC is considering how best to frame the various contributions of Earth observations. Ms Venturini also noted that the Secretariat had hired an intern to prepare an inventory of monitoring GHG emissions from space, starting with agencies within the Committee on Earth Observation Satellites (CEOS), but also including private providers. The intent of this work is to help policy makers to understand the capabilities of these technologies. Regarding the SCO, the Working Group has been in contact with the managers and there are plans for a joint event. As for the SCO charter, in the view of the Secretariat there is already a connection with GEO since SCO is an activity in the GWP. With respect to GCOS, there are no concerns with overlapping themes since the GCOS conference has now been postponed and they are looking at complementary approaches and events. Ms Venturini noted that the Secretariat had an interesting exchange regarding collaboration with WMO and IPCC and looked forward to better funding support and collaboration mechanisms through this process. On the Space 4 Climate Action event, the Secretariat has followed up with UNOOSA and noted that the initiative is mostly oriented toward technical assistance and capacity development. The Austrian government has indicated their intention to recognize GEO in the forum documents.

Outcomes: The Executive Committee:

- Thanked Sara Venturini and the Climate Change Working Group for their work and for the report;
- Looked forward to GEO's anticipated acceptance as an Observer to the United Nations Convention on Climate Change (UNFCCC); and
- Noted the appeal for support from GEO Members for GEO's Observer status and role within UNFCCC at the 26th Conference of the Parties.

3 SESSION 3: SYMPOSIUM AND GEO WEEK 2021

3.1 Outcomes from the GEO Symposium (presentation – Secretariat)

Craig Larlee, Work Programme Coordinator in the Secretariat, presented the item on behalf of the Symposium Subgroup. Mr Larlee acknowledged the members of the Programme Board Symposium Subgroup and the support from the Secretariat staff. The objectives for this year's Symposium were based on the experience in 2020 and included providing more time for discussion and interaction among speakers and participants and the development of linkages to GEO Week 2021 through the Plenary session themes. He noted that, in contrast to previous GEO Symposia, the 2021 Symposium offered much more opportunity for the GEO community to propose and organize sessions. The times of the sessions were also varied to better accommodate those in East Asia/Pacific and the Americas regions. Mr Larlee drew attention to the very large attendance (over 800 persons) from at least 82 countries and 49 Participating Organizations, this being much larger than in-person Symposia. He noted that the attendance figures suggested that most attendees participated in relatively few sessions rather than for the entire event. Lessons learned from the event, including the results of the participant survey, are expected to feed into the planning for GEO Week 2021.

The Chair asked whether there would be a video summary of highlights of the Symposium. Steven Ramage (Secretariat) replied that links to the individual session videos have been shared through the GEO social media accounts.

Outcomes: The Executive Committee congratulated the Symposium Subgroup for their organization of a successful GEO Symposium.

3.2 GEO Week 2021 (Document 55.10 – for discussion)

Steven Ramage, External Relations Manager in the Secretariat, presented the item on behalf of the GEO Week 2021 team. He noted several key milestones that align closely with the GEO engagement priorities, including the UN Decade of Ocean Science for Sustainable Development, the UN Decade of Ecosystem Restoration, and the 15th Conference of the Parties to the UN Convention on Biological Diversity, among others. The GEO Week 2021 team is planning to build on this context to explore the potential for GEO contributions in four key areas: Biodiversity, Ecosystems, and Nature-based Solutions; Oceans and Climate; Water, Energy and Food; and Resilient Cities and Human Settlements. These themes will be the focus for a set of “Anchor Sessions” to which GEO Members are encouraged to bring in policy experts and others who may work in related areas but who have not generally been involved in GEO. In addition to the Anchor Sessions, there will also be Plenary Sessions where GEO delegations will discuss the core business of GEO; side events proposed by the GEO community; a virtual exhibition open to GEO Members, Participating Organizations and Associates; and opportunities for virtual networking. The week will begin with the 56th Executive Committee meeting. Mr Ramage concluded with several requests to Executive Committee members, including to send their delegation lists (including a range of agencies) and official statements to the Secretariat by 1 September 2021. He noted that separate calls for expressions of interest for the virtual exhibition and for the side events will be issued in late July 2021.

China encouraged the GEO Week team to include connections with United Nations agencies and asked whether there would be an Industry Track.

South Africa proposed an Industry Track and shared some slides that provided a brief description. The Industry Track would build on the momentum from the Canberra event in 2019 and the virtual event theme of access in 2020. Co-leads for the event would be sought from other regions and from industry. The agenda is intended to complement that of the Plenary and is expected to provide several benefits. It was proposed that ZASpace and AfriGEO would convene a joint organizing committee with other regional representatives. The importance of ensuring alignment with the GEO Week programme was noted.

Australia congratulated the Symposium Subgroup for the organization of the event, noting the very good content and organization. The plans for GEO Week 2021 were also supported, though the proposed times would be challenging for the PICTs, who may feel excluded and find it difficult to take advantage of the opportunities for interaction. Australia recommended that the team think about approaches that promote geographical inclusion.

The United States concurred with the South Africa proposal on the Industry Track, though noting that GEO did not hold a Plenary last year and so it would be more challenging to organize this year.

The Secretariat Director encouraged Executive Committee members to bring individuals with relevant expertise but who are not yet involved in GEO to the Anchor Events.

Outcomes: The Executive Committee:

- Thanked the GEO Week 2021 team for their work and expressed satisfaction with the progress in the planning;
- Welcomed the strong links to global policy agendas that are being developed in the programme;
- Noted the requests for delegation lists and official statements to be sent to the Secretariat; and
- Supported the proposal from South Africa regarding organization of an Industry Track to be held in conjunction with GEO Week 2021.

4 SESSION 4: ANY OTHER BUSINESS AND REVIEW OF ACTION ITEMS

4.1 Any Other Business

Outcome: The Executive Committee approved the following documents:

- Draft Report of the 54th Session of the Executive Committee (Document 55.2);
- Review of Action Items from Previous Meetings (Document 55.3); and
- Review of Applications for Participating Organization Status (Document 55.11).

Meeting adjourned 16:05

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