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Item **4.4** of the Provisional Agenda

REPORT AND RECOMMENDATIONS OF THE GEBCO GOVERNANCE REVIEW PROJECT TEAM (2024)

Summary

This report is pursuant to the decision of the IHO-IOC GEBCO Guiding Committee to launch a GEBCO governance review in 2022 and IOC Assembly Decision A-32/Dec.4.1 to present the outcomes to this session of the IOC Executive Council. This full report prepared by the GEBCO Governance Review Project Team is appended to this summary of conclusions and recommendations.

This document should be read in the light of the new strategy for GEBCO presented to this Council in Information Document IOC/INF-1538. The Executive Council is invited to comment on the results of this analysis with a view to an implementation plan to be developed by the GEBCO Guiding Committee.

Financial and administrative implications: These will be considered within the 42C/5 approved programme and budget.

The proposed decision is referenced as Draft Resolution EC-57/[4.4.II] in the revised Action Paper (document IOC/EC-57/AP Prov. Rev.)

Context

1.   The GEBCO (General Bathymetric Chart of the Oceans) Governance Review Report provides an in-depth analysis of the entity's governance structures and practices, aimed at enhancing its operational efficiency and alignment with the strategic objectives of its parent organizations, the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO. The review was motivated by the recognition of the rapidly changing ocean science and seabed mapping landscape, necessitating a more robust programme management and continuous improvement approach.

2.   Key components of the review include an examination of the organizational and governance arrangements within GEBCO, its committees, and its interactions with external bodies. The review also highlights the importance of GEBCO's work considering the UN Decade of Ocean Science for Sustainable Development and the need for increased international coordination in ocean data collection.

3.   Findings and recommendations address the need for clearer governance structures, enhanced stakeholder engagement, risk management practices, and the establishment of a continuous improvement culture. The review emphasizes the importance of aligning GEBCO's work with the newly commissioned GEBCO Strategy, which was developed in parallel to this governance review.

4.   The report suggests several next steps, including the presentation of the report to the GEBCO Guiding Committee (GGC) for consideration, individual evaluation of recommendations, the development of an implementation plan, and the integration of a continuous improvement regime. Additionally, it calls for a governance review of the Sub-Committee on Undersea Feature Names (SCUFN) and an examination of the oversight of the Nippon Foundation-GEBCO Seabed 2030 project.

5.   In conclusion, the review outlines the necessity for GEBCO to evolve its governance structures and processes to remain relevant and effective in the changing landscape of ocean science and seabed mapping.

Conclusion and Next Steps

6.   The governance review process was significantly more extensive and complex than initially anticipated, highlighting the intricate nature of the structures involved. Central to the issues identified were the need for better formalization of processes and a clearer definition of roles, responsibilities, and accountabilities, which combined may result in a systemic lack of clarity that could hamper operational effectiveness. A key gap identified was the absence of dedicated programme management resource which would ideally bridge the operational gap between the Sub-Committee Chairs and the GGC.

7.   A key finding is the need to review the GGC in terms of its size, structure, and function. This reform is deemed essential and should involve the parent organizations. Further, particular care should be taken to avoid dilution of purpose and effectiveness by expanding the GGC membership in the quest for inclusivity.

8.   As GEBCO continues on its growth trajectory, it is clear that its governance practices must evolve in tandem to support this development effectively. The absence of a GEBCO strategy during the governance review limited the ability to pinpoint specific structural reforms. This highlights the necessity for future governance iterations to be closely aligned with the new strategy once in place, integrating a continuous improvement regime as a fundamental aspect of GEBCO's operational ethos. Together, these observations paint a picture of an organization at a crossroads, where strategic planning, clarity in governance, and the establishment of dedicated management resources are critical for its future direction and effectiveness.

List of Recommendations

Section Number[1]	Subject	Recommendation
8.1	Organizational Structure	The organizational diagram should be reviewed by the GGC with a definitive version agreed and included in the ToRs and RoPs of the GGC.
8.3	Relationship and Reporting Mapping – IHO – IOC	The MoU should be revisited and refreshed to make sure it reflects all current endeavours.
8.3	Relationship and Reporting Mapping – IHO – IOC	A partnership arrangement should be established between the two organizations to allow the distribution/holding of funds in the central GEBCO fund at the IHO.
8.3	Relationship and Reporting Mapping – IHO – NOAA (DCDB)	Review the MoU periodically or after any organizational change to ensure it is current and fit for purpose.
8.3	Relationship and Reporting Mapping – IHO/IOC - GEBCO	The exact status of the GGC should be clarified as it relates to the IHO operating structure.
8.3	Relationship and Reporting Mapping – IHO/IOC - GEBCO	The ToRs and RoPs should be updated to reflect the GGC38 decision to reclassify the GEBCO Project as a Programme.
8.3	Relationship and Reporting Mapping – GEBCO/SCOPE – Map the Gaps	Develop an MoU or partnership agreement that clearly sets out the nature of the relationship between GEBCO and Map the Gaps. As a minimum this should set out clearly any joint decision-making processes, liability, levels of autonomy and detail relating to branding and identify.
8.3	GGC – SB2030	SB2030 Governance documentation should be reviewed, and the latest versions submitted to the GGC and SB2030 Sponsors to ensure that all parties are aware of the current governance arrangements.
8.3	Relationship and Reporting Mapping – SCET/GGC – NF – GEBCO Training Programme	Clarify the relationship between SCET and the NF – GEBCO Training Programme, especially as relates to oversight, and ensure that either existing instruments are adjusted, or new ones created to describe the governance arrangements.
8.3	Relationship and Reporting Mapping – TSCOM - BODC	Develop and Service Level Agreement that describes agreed deliverables from BODC on behalf of TSCOM/GEBCO.
9.3	Current Programme Work Structure	Ensure there is a clear cascade and linkage between the objectives set out in the GEBCO Strategy and the individual work items included in the work plans.
9.3	Current Programme Work Structure	Consider the creation of a dedicated programme management board.
9.3	Current Programme Work Structure	Consider the need for a dedicated GEBCO Programme Manager.

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[1] refer to the sections in the addendum to this document.

Section Number[1]	Subject	Recommendation
10.2	Finance – Future Ambition	The options proposed within the Funding Proposal report should be considered alongside the legal review once this governance review has been considered and an implementation plan produced. Consideration should also be given to work of the IHO Funding Project Team to avoid duplication and take advantage of synergies.
11	Legal Review	A full review of the current and potential future legal status of the GEBCO Programme be commissioned. This review should consider the GEBCO Strategy and the previously commissioned Funding Strategy.
12	Risk Management	All bodies that have a work plan adopt a risk management process to support effective programme delivery.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Review ToRs to ensure alignment with strategy.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Consider these deficiencies when approving future versions of WPs.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Consider the makeup of the GGC membership against new strategy and governance norms.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Note and include in financial review.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Develop a policy that makes it clear to what extent all members of the GGC are expected to fund their own travel.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Consider the shape and size of the GGC.
13.2.1	Analysis of Key GEBCO Bodies - GGC	ToRs and GGC Membership list to clarify roles and responsibilities of GGC member and whether the categories of appointment support or hinder effective delivery of GGC business.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Review ToRs to ensure alignment with Strategy.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Rationalise work plan to reduce items and improve clarity.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Incorporate into IHO – DCDB MoU
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	IHO/IOC to consider implementing an MoU.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Identify a secretary from within the membership, establish terms of service and update ToRs accordingly.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Conduct a review of the SB2030 Governance Documents.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Give all GEBCO products an IHO/IOC formal publication reference e.g. Digital Atlas.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Review and potentially reduce number of full members – adjusting ToRs as required.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Review ToRs to ensure alignment with Strategy.

Section Number[1]	Subject	Recommendation
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Work with other SCs and SB2030 team to review work plan and add notation where required to clarify areas of common interest.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Review Work plan once strategy has been published and agree prioritization.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	SCRUM to consider and agree on a routine that works for membership.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Review and potentially reduce number of full members – adjusting ToRs as required.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Review ToRs to ensure alignment with Strategy.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Define process diagram that can be appended to ToRs.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	SCRUM to consider and agree on a routine that works for membership.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Consider a new category of participation of IHO/IOC Comms Reps in SCOPE.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Review and potentially reduce number of full members – adjusting ToRs as required.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Relationship should be clarified and formalized via an appropriate instrument.
14	Continuous Improvement	Consider the proposal for a continuous improvement process and implement into GEBCO Programme business as usual practices.

Next steps and future activities

9.   The following next steps are presented for consideration subject to discussion by the GGC and other key stakeholders:

10.   **Presentation of Report.** The report will be submitted for the consideration of the GGC as set out in the GGRPT ToRs and RoPs.

11.   **Individual Consideration of Recommendations.** These recommendations are to be evaluated either by the GGC as a whole or by a designated sub-group. This step ensures focused attention on each suggestion, facilitating thorough analysis and decision-making. Care should be taken when deciding whether or not to implement a recommendation, as some recommendations may or may not be mutually exclusive.

12.   **Development of Implementation Plan.** A structured plan for implementing the agreed-upon recommendations should be developed. This plan will serve as a roadmap, outlining the steps necessary to deliver the desired changes and improvements.

13.   **Integration of Continuous Improvement Regime.** There is a clear directive to embed a continuous improvement framework into the working practices of all committees and subcommittees. This approach aims to foster an ongoing culture of evaluation and enhancement, ensuring that governance mechanisms evolve in line with organizational needs and challenges.

14.   **Governance Review of SCUFN.** A specific governance review using the same model employed for the broader analysis could be conducted for the Sub-Committee on Undersea Feature Names (SCUFN). This targeted review will assess SCUFN's governance structures and processes, with findings to be reported back to the GGC.

15.   **Review of SB2030 Oversight.** An examination focused on the oversight of the Seabed 2030 (SB2030) project could be considered. Such a review should consider how GEBCO's governance needs to adapt to support a growing portfolio of projects and programmes. It is crucial that this review is conducted with caution to avoid disrupting the operations of SB2030, which is recognized as a well-functioning project. Further, any review should be discussed and planned in consultation with the Nippon Foundation and Parent organizations to ensure it adheres to and meets the needs of all parties.

16.   **Review of the legal status of GEBCO.** Depending on the outcome of the GEBCO Strategy activity, and in considering the future ambition of GEBCO to undertake fundraising for future activities, a targeted review of the options for the future legal status of GEBCO should be undertaken. This should ideally be led by the Parent Organizations.

GEBCO Governance Review

Executive Summary

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Key components of the review include an examination of the organizational and governance arrangements within GEBCO, its committees, and its interactions with external bodies. The review also highlights the importance of GEBCO's work considering the UN Decade of Ocean Science for Sustainable Development and the need for increased international coordination in ocean data collection.

Findings and recommendations address the need for clearer governance structures, enhanced stakeholder engagement, risk management practices, and the establishment of a continuous improvement culture. The review emphasizes the importance of aligning GEBCO's work with the newly commissioned GEBCO Strategy, which was developed in parallel to this governance review.

The report suggests several next steps, including the presentation of the report to the GEBCO Guiding Committee (GGC) for consideration, individual evaluation of recommendations, the development of an implementation plan, and the integration of a continuous improvement regime. Additionally, it calls for a governance review of the Sub-Committee on Undersea Feature Names (SCUFN) and an examination of the oversight of the Nippon Foundation-GEBCO Seabed 2030 project.

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1. Introduction

GEBCO was proposed in 1899 and became a reality in April 1903 when HSH Prince Albert I of Monaco offered to organize and finance the production of a new chart series designated: "The General Bathymetric Chart of the Oceans" (GEBCO), under the Prince's Scientific Cabinet. In 1922 the responsibility for GEBCO was passed to the Director of the Oceanographic Museum of Monaco and in 1929 was transferred to the International Hydrographic Bureau (today the IHO). Since 1973, GEBCO has been a joint Programme of the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

In December 2021, an informal meeting between the IHO, IOC and GEBCO Chair/Vice Chair was held to discuss areas of mutual interest and implications of emerging initiatives. In doing so it was acknowledged that a routine review of governance is not only good practice but would likely help to ensure GEBCO remained relevant during this period of change. In considering how to move forward, it was agreed that there was a strong need to ensure that the work of GEBCO continued to support the strategic objectives of IHO and IOC. The issue was further discussed at the 38th GEBCO Guiding Committee Meeting (GGC38) and it was agreed that a Governance Review should be commissioned under the leadership of IHO Assistant Director and GEBCO Secretary, Mr Sam Harper. A GEBCO Governance Review Project Team (GGRPT) was assembled to provide support to support the governance review process.

The results of the Governance review were initially planned for delivery to the 15th IHO Inter-Regional Coordination Committee (IRCC15) and the 32nd IOC Assembly, however the complexity of the task and available resources meant that this was deferred to the 16th IHO Inter-Regional Coordination Committee (IRCC16) and the 57th Session of the IOC Executive Council.

This report serves as a summary of the analysis, associated findings and recommendations of this Governance Review. In particular it sets out the methodology employed and sets out the basis for a more robust Programme Management and Continuous Improvement approach to the management of GEBCO activity.

2. Objectives and Context

The ocean science and seabed mapping landscape are undergoing significant change and the work of GEBCO (including that of the Nippon Foundation GEBCO Seabed 2030 Project) has never been so relevant or visible. The advent of the UN Decade of Ocean Science for Sustainable Development, together with the broader UN 2030 Agenda and associated Sustainable Development Goals (SDGs) necessitate increased international coordination in the collection and provision of ocean data to support a range of critical science interventions. The GEBCO programme entered its 120th Year in 2023 and it is widely accepted that GEBCO will need to evolve with this changing environment in order to remain relevant, and that its organizational structure has grown in recent years; to support this evolution this governance review has been commissioned.

The **aim** of the governance review is to ensure that the GEBCO programme has the appropriate governance in place to effectively and efficiently deliver its annual work plan (and those of its subordinate bodies and activities), guided by the strategic objectives of its parent organizations (IHO and IOC) and the GEBCO Strategy.

The main **objectives** of the governance review are to examine:

- The organizational and governance instruments and practices associated with GEBCO, its Guiding Committee and its Subcommittees;
- The organizational and governance arrangements between GEBCO and external bodies that it routinely interacts with;
- The organizational and governance arrangements for projects and any work items that GEBCO is involved in.

3. GEBCO Strategy

In preparing for undertaking the governance review, GGC noted that ordinarily, such an exercise would be designed to facilitate the delivery of a central strategy. For GEBCO, no such strategy existed; instead GEBCO had a central mission statement "to deliver the most authoritative, publicly available bathymetry of the world's oceans". Whilst the respective strategies of the parent organizations provided some guidance, nowhere was the connection explicitly stated. As a consequence, GGC commissioned the creation of a dedicated GEBCO Strategy which has been developed in parallel with this governance review.

Given that the GEBCO Strategy has not yet entered into force, GGC approved the following assumptions to be used in conducting the governance review:

- GEBCO is a Programme and will be an enduring endeavor;
- GEBCO will remain a joint Programme of the IHO and IOC;
- GEBCO relies on its parent organizations to hold funds;
- GEBCO needs to be able to fundraise, spend and allocate funds to its bodies, projects, collaborative activities and contracted services;
- The funds held on GEBCO's behalf will/could increase significantly;
- GEBCO as a Programme will have subordinate committees, working groups, projects and other work packages.

Further, it was noted at GGC level that once the strategy enters into force, its aims and objectives should be carefully considered in future iterations of the governance review, or in the adoption of a continuous improvement approach to programme management.

4. GEBCO Governance Review Project Team (GGRPT) Terms of Reference and Rules of Procedure

Dedicated Terms of Reference (ToRs) and Rules of Procedure (RoPs) for the GGRPT were approved by 14th IHO Inter-Regional Coordination Committee (IRCC14) and the 56th Session of the IOC Executive Council. The ToRs and RoPs can be found at Appendix A.

5. External Advisory Panel

The GGRPT ToRs and RoPs state that "the project team is empowered to identify suitably qualified members of an External Advisory Panel, and to engage them as required in order to provide assurance to the GGC (and the bodies to which the GGC is accountable) that the work that undertaken is of sufficient quality, is impartial and is objective in its recommendations". The GGRPT considered carefully how they would make use of such a resource, and it was decided that they could be used on an ad hoc basis.

To date, three of the four positions identified have been filled with only a representative from industry to be appointed. Currently the EAP is constituted of:

Legal Representative – Dr Virginie Tassin Campanella, Avocat à la Cour (Paris Bar) & EU/EFTA Attorney-at-Law (Zürich Bar), Vice President of the Scientific Council of INDEMER (Monaco)

Financial Representative – Mrs Sandrine Brunel, IHO Secretariat

Academic Representative – Dr Paul Elsner, University of London

Industry/Private Sector Representative – TBC

6. Governance Framework

In undertaking this governance review, it was essential to draw upon standardized best practices that exist as they relate to programme management and delivery. Whilst there is a huge amount of literature on the subject, and many different approaches to progamme governance, two principal sources were referenced:

- ISO 21500:2021 (Guidance on project management), and ISO 21502:2020 (Guidance on programme management)
- The UK Government Functional Standard for Project Delivery

These two references were chosen on the basis that the ISO standards are by definition generic and cross cutting, whilst the UK Government Functional Standard for Project Delivery has proven utility (from the experience of the author) for the implementation and delivery of projects using the principles set out in the ISO Standards.

Below follows a summary of the key relevant elements that were considered in undertaking this review.

6.1. ISO 21500:2021 (Guidance on Project Management) and ISO 21502:2020 (Guidance on Programme Management)

ISO 21500:2021 and ISO 21502:2020 provide international standards and guidance on project and programme management. These standards offer a structured approach to managing initiatives effectively. In the context of a governance review of GEBCO, the following principles apply:

Governance Framework: Evaluate the presence of a well-defined governance framework within GEBCO. Ensure that roles, responsibilities, and authorities are clearly defined, and that there is alignment between project and programme governance structures.

Benefit Realization: Assess GEBCO's approach to defining, tracking, and realizing the benefits of its initiatives. Ensure that benefit realization plans are in place and that they align with the 'organization's mission and objectives.

Documentation and Record-Keeping: Examine GEBCO's documentation practices, including records of decisions, project plans, and governance meeting minutes. Ensure that documentation is thorough and accessible.

Change Management: Review how GEBCO handles changes to its projects and programmes. Assess the effectiveness of change control processes to minimize disruptions and ensure alignment with strategic goals.

Continuous Improvement: Promote a culture of continuous improvement within GEBCO by identifying opportunities to enhance governance processes and practices. Regularly review and update the governance framework to adapt to changing needs and best practices.

6.2. UK Government Functional Standard for Project Delivery

The UK Government Functional Standard for Project Delivery provides a comprehensive framework for managing projects effectively within governmental organizations. Whilst GEBCO is a jointly owned programme of two inter-governmental organizations (so not strictly speaking government organizations), the expectations of good governance placed upon the parent organizations of GEBCO by their respective member states, means that this resource is highly relevant. In addition, the framework was used as the basis for the governance of a number of highly successful UK seabed mapping programmes (e.g. the Civil Hydrography Programme, The Commonwealth Marine Economies Programme and the Overseas Territories Seabed Mapping Programme). When applied to a governance review of GEBCO, the following key components and principles become relevant:

Governance Structure: Assess GEBCO's existing governance structure, including roles, responsibilities, and decision-making bodies. Ensure that the structure aligns with best practices and promotes accountability.

Stakeholder Engagement: Evaluate how GEBCO engages with its stakeholders, including government agencies, international organizations, and the public. Ensure transparency and consider the needs and expectations of various stakeholders.

Risk Management: Review GEBCO's risk management practices, including the identification, assessment, mitigation, and monitoring of risks. Ensure that risks are adequately addressed to protect the 'organization's mission and objectives.

Performance Measurement: Examine the key performance indicators (KPIs) and metrics used by GEBCO to measure project and programme success. Ensure that these measurements align with organizational goals.

Decision-Making Processes: Assess the clarity and effectiveness of decision-making processes within GEBCO, particularly at the governance and executive levels. Ensure that decisions are well-informed and transparent.

In summary, the UK Government Functional Standard for Project Delivery, ISO 21500:2021, and ISO 21502:2020 collectively provide a structured approach to governance and project/programme management. In conducting the governance review, these standards were used to assess and enhance

governance structures, stakeholder engagement, risk management, performance measurement, decision-making processes, benefit realization, documentation, change management, and continuous improvement practices to align with best practices and meet GEBCO's objectives effectively.

7. Methodology and Scope

7.1. Stakeholder Engagement

The stakeholder engagement process undertaken blended desk-based research with targeted consultations to ensure a thorough understanding and integration of stakeholder perspectives into the review's development. Below is a summary of the approach taken:

Desk-Based Study. The majority of the research and analysis took the form of a desk-based study, which served as the primary method for gathering initial data, insights, and identifying findings. This approach allowed for the collection of extensive background information, setting a solid foundation for subsequent consultations.

Consultations with Key Stakeholders. A series of consultations were conducted with key stakeholders to delve deeper into the issues identified during the desk-based study. These interactions were crucial for obtaining firsthand insights, feedback, and recommendations, ensuring that the governance review's direction was informed by those with a vested interest in its outcome.

Consultations with Chairs of the Sub-Committees. Special attention was given to engaging the Chairs of the Sub-Committees, who played a critical role in the consultation phase. All Chairs were given the opportunity to review the initial findings and, in many cases, have already begun addressing them. This targeted engagement ensured that the project's preliminary outcomes were scrutinized before specific recommendations were made.

Support from the External Advisory Panel (EAP): The External Advisory Panel (EAP) provided a key source of support and perspective from outside of the immediate GEBCO community. The legal advisor's input was instrumental in navigating the governance norms and legal structures of various international bodies, providing a nuanced understanding of the legal considerations impacting the programme.

7.2. Analysis and Identification of findings

Whilst the focus governance review was far broader than just the workings of the main GEBCO bodies, a series of guiding questions were developed to assist in the review of governance instruments and work plans. These questions were used as the starting point for the research and analysis, and provided consistency of approach, as well enabling the process to be repeatable. These questions were as follows:

- Do the relevant governance instruments exist?

- Are the governance instruments up to date and do they adequately support the work of the group or committee?

- Is the work plan clear, current and logically structured?

- Is the work of the GGC and SCs appropriately structured in terms of programme delivery hierarchy?

- Is the membership of the group or committee appropriate and are there any barriers to effective contribution?

- Are any relevant working practices sufficiently clear, formalized and fit for purpose?

7.3. Scope

The detailed analysis in the governance review is limited to the main GEBCO Bodies (GGC and the Sub-Committees), as well as those activities, projects and organizations that GEBCO interacts with or has some kind of functional relationship. One exception is SCUFN, as it operates far more independently than the other Sub-Committees and was deemed too complex to be included in the initial phase.

The internal workings and joint oversight of the Nippon Foundation – GEBCO Seabed 2030 Project is also out of scope in this initial phase. A general description and the nature of the relationship to the GEBCO and the GGC are described for completeness.

Both SCUFN and Seabed 2030 could be considered for future phases as it would certainly be valuable to have the most complete governance picture possible. In the case of SB2030, this would be particularly relevant if or when GEBCO develops other projects and partnerships.

The following specific areas of analysis are in scope of the governance review:

- Mapping of GEBCO organizational and functional structure, detailing the nature of any relationships, reporting lines, obligations or liabilities;

- Review of the legal structure and framework with a statement on the current and recommended future status (if change is deemed necessary);

- Review of financial arrangements with a statement on the current and recommended future status (if change is deemed necessary);

- A gap analysis of the current governance instruments (e.g. MoUs, ToRs etc.);

8. Organizational Mapping

8.1. Organizational Structure

A key element of the governance review was the mapping the organizational structure of the GEBCO Programme. This was a complex exercise; not least because the GEBCO Programme has evolved organically over the past 120 years. It is also the case that in some cases, the lack of governance instruments means that the exact nature of the reporting lines, and levels of autonomy and responsibilities are at best unclear, and at worst disputed. Figure 1 shows a representation of the organizational structure of the GEBCO Programme. It has been used for the basis of the governance review, analysis and governance instrument gap analysis.
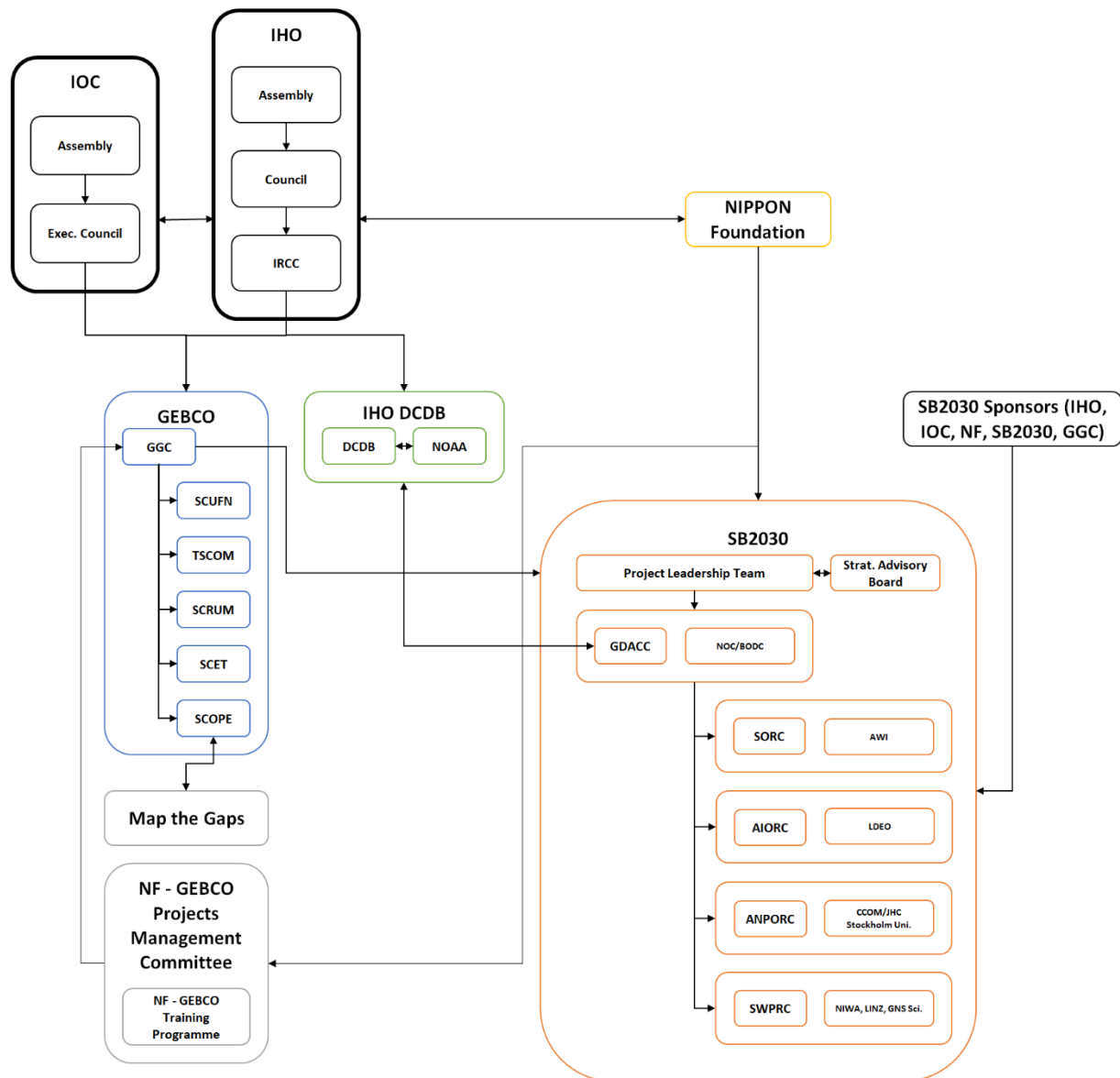

Figure 1 GEBCO Organizational Structure

Recommendation: The organizational diagram should be reviewed by the GGC with a definitive version agreed and included in the ToRs and RoPs of the GGC.

8.2. Key bodies and organs of GEBCO

8.2.1. GEBCO Guiding Committee

The GEBCO Guiding Committee leads the delivery of the GEBCO Programme. The GGC's operations are governed by its ToRs and RoPs (Appendix B) of which the latest version was adopted by the IOC on 4 July 2019 and the IHO on 5 June 2019. The GGC is made up of sixteen members; five Members appointed by the IHO, five Members appointed by the IOC, as well as the Chairs of GEBCO Sub-Committees and the Director of the IHO Data Centre for Digital Bathymetry (DCDB). Members of the GGC serve as experts in their personal capacity rather than as representatives of their organization and/or country. Representatives of the Secretariats of the IHO and IOC are permanent Observers in the GGC.

The objectives of the GGC are summarized as:

The GEBCO Guiding Committee shall:

- Guide the IHO-IOC GEBCO Project, under the general governance of IHO and IOC while recognizing and following IHO and IOC policies.
- Authorize the preparation and dissemination of maps, grids, data files and other appropriate depictions of the ocean floor.
- Identify the needs of the various user communities of the bathymetry of the world's oceans; study the ways and means whereby these needs can be met.
- Identify the necessary resources, both human and financial, for its undertakings and make appropriate recommendations to its parent organizations.
- Stimulate the flow of data relevant to the GEBCO Programme by actively identifying sources of new data and encouraging and promoting the release of data to appropriate data banks, with the objective of ensuring that maximum available data are provided to the IHO Data Centre for Digital Bathymetry (DCDB).
- Supervise the development, maintenance and routine updating of GEBCO products. Activities are to include but are not restricted to:
  o Study and set out procedures for new compilations of bathymetry.
  o Develop standards and methodologies for the production of bathymetric maps and grids and recommend their adoption to the IHO and IOC and to the seafloor mapping community.
  o Supervise the development, production and updating of a worldwide grid of digital bathymetric data.
  o Supervise the preparation and maintenance, in association with national and international bodies, of an authoritative IHO/IOC GEBCO Gazetteer of Undersea Feature Names.
  o Study and implement the best distribution mechanism for the effective use of GEBCO products by all users.

- o Investigate and develop appropriate logistical and financial arrangements necessary for the furtherance of the GEBCO Project, recognizing and taking into account the relevant IHO and IOC policies, and seeking the assistance of the Secretariats of the IHO and IOC as appropriate.
- o Integrate into its products the geographical names of undersea features that appear in the IHO-IOC GEBCO Gazetteer of Undersea Feature Names.

8.2.2. Sub-Committee on Undersea Feature Names (SCUFN)

The Sub-Committee on Undersea Feature Names reports to the Joint IOC-IHO GEBCO Guiding Committee (GGC) as its designated authority for all matters concerning undersea feature names. It is the function of the Sub-Committee to select those names of undersea features in the world ocean appropriate for use on GEBCO graphical and digital products, on the IHO small-scale international chart series, and on the regional IBC series.

8.2.3. Technical Sub-Committee on Ocean Mapping (TSCOM)

The Technical Sub-Committee on Ocean Mapping (TSCOM) was established in 2006 to advise the GEBCO Guiding Committee and all associate groups interested in the building and use of the GEBCO product. In addition, TSCOM serves the greater bathymetric, hydrographic, and maritime communities as authoritative source for technical expertise in seafloor mapping and forum for discussion on emerging technologies and applications of bathymetric and hydrographic data. The importance of this advising group is further stressed by The Nippon Foundation-GEBCO Seabed 2030 project.

TSCOM reports to the GGC as its designated authority for all technical matters relevant to the goals of GEBCO as set out in the ToRs and RoPs (Appendix C).

8.2.4. Sub-Committee on Regional Undersea Mapping (SCRUM)

At a meeting of some GEBCO Guiding Committee (GGC) members (and one IHB representative) in Silver Spring, Maryland, USA on 18-29 May 2009, it was decided that a new Sub-Committee was required to coordinate, encourage, and provide an interface with the various regional mapping efforts being conducted by IOC, IHO and others. In addition, such a Sub-Committee on Regional Undersea Mapping (SCRUM) could function as an Editorial Board endorsing regional products to be included in GEBCO. These Terms of Reference and Rules of Procedure were presented to the full GGC at the annual meeting on 1-2 October 2009 in Brest, France, and the creation of the Sub-Committee was approved on an interim basis. At the following GGC meeting in Lima, Peru, on 18 September 2010, the Committee approved the formation of SCRUM on a permanent basis, subject to the approval of IOC and IHO. Authority for the creation of this sub-committee is included in the GGC Terms of Reference, paragraph 1.9, which states that "As required, establish subordinate bodies (sub-committees and working groups) to fulfil the Committee Work Programme and approve the Terms of Reference and Rules of Procedure of those bodies, reviewing annually the continuing need for each subordinate body." In accordance with paragraph 1.11 of the GEBCO Terms of Reference, SCRUM shall coordinate with regional mapping projects on the specifications and preparation of regional digital bathymetric models and charts, to ensure their compatibility with, and eventual inclusion in, GEBCO products.

SCRUM reports to GGC as its designated authority for all regional mapping and coordination matters relevant to the goals of GEBCO as set out in the ToRs and RoPs (Appendix D).

8.2.5. Sub-Committee on Outreach and Public Engagement (SCOPE)

At a meeting of the GEBCO Guiding Committee (GGC) in Busan, Republic of Korea on 16-17 November 2017, it was agreed that a new Sub-Committee was required to coordinate the communications, outreach and external relations strategy and activities being conducted to support and raise awareness of the GEBCO Project and to complement the focused outreach activities of the Seabed 2030 Initiative. SCOPE is required to work closely with all GEBCO Sub-Committees and with the Seabed 2030 Project Team to ensure a coordinated message, communications and engagement are achieved to support the activities of the IHO-IOC GEBCO Project. SCOPE also seeks to awareness of the GEBCO programme across regional and global communities with an interest in and need for ocean bathymetry data. The annual GEBCO Symposium, which has come to be know as the 'Map the Gaps Symposium' forms part of the SCOPE annual work plan.

SCOPE reports to the GGC as its designated authority for all outreach matters relevant to the goals of GEBCO as set out in the ToRs and RoPs (Appendix E).

8.2.6. Sub-Committee on Education and Training (SCET)

The Sub-Committee on Education and Training (SCET) was established in 2022 to develop and coordinate the education and training strategy of the GEBCO Programme. In addition, SCET aims to raise awareness amongst academic institutions of gaps in education and training that may impact on the progress and development of ocean mapping and in particular, the objectives of the GEBCO Programme. As the newest GEBCO Sub-Committee, SCET is still in the initiation phase and is yet to make meaningful progress against its work plan.

SCET reports to the GGC as its designated authority for all education and training matters relevant to the goals of GEBCO as set out in the ToRs and RoPs (Appendix F).

8.3. Relationship and reporting mapping

Based upon the entity's mapping exercise, an analysis of the key functional and reporting relationships was undertaken. This included a review of the existing governance instruments and the identification of where gaps exist. This analysis is summarized in table 1.

Table 1 Governance Instrument Gap Analysis

Relationship	Description	Existing Instruments	Gaps and Recommendations
IHO – IOC	The nature of the relationship is a partnership between the parent organizations. This is currently described in a generic MoU that is far broader than just GEBCO. However, it also predates the	MoU	1. **The MoU should be revisited and refreshed to make sure it reflects all current endeavors.** 2. **A partnership arrangement should be established between the**

	advent of endeavors such as the UN Decade of Ocean Science for Sustainable Development and the Nippon Foundation – GEBCO Seabed 2030 Project. As noted in the summary of the financial review, there is currently no mechanism for the exchange of funds from the IOC to the IHO. This limits how this contribution can be applied and requires a separate funding allocation process.		**two organizations to allow the distribution/holding of funds in the central GEBCO fund at the IHO.**
IHO – NOAA (DCDB)	The Data Centre for Digital Bathymetry (DCDB) is the repository for much of the publicly available data that feeds into the GEBCO Grid as well as the Gazetteer of Undersea Feature Names. The DCDB is an IHO resource that is managed on behalf of the IHO Member States by the United States National Oceanic and Atmospheric Administration (NOAA). Prior to the start of the governance review, no specific instrument other than the record of the IHO Conference Decision to establish the DCDB existed to describe this relationship. This has subsequently been rectified in the form of an MoU which was signed during the 3rd Session of the IHO Assembly in 2023.	MoU	1. **Review the MoU periodically or after any organizational change to ensure it is current and fit for purpose.**
IHO/IOC – GEBCO	The only instrument that describes the relationship between the parent organizations and the GEBCO Programme are the GGC ToRs and RoPs, last updated in 2021.	GGC ToRs and RoPs	1. **The exact status of the GGC should be clarified as it relates to the IHO operating structure.** 2. **The ToRs and RoPs should be updated to reflect the**

	This document details that the GEBCO Guiding Committee is classed as a Joint Group of Experts under the IOC guidelines for subsidiary bodies, however there is no explanation of the status of the GGC as it relates to the IHO. In practice, the GGC reports into the IRCC and can be considered a subsidiary body of this IHO organ, however its exact status is not stipulated. The ToRs and RoPs refer to GEBCO as a project, despite a decision taken at GGC38 to reclassify it as a programme.		**GGC38 decision to reclassify the GEBCO Project as a Programme.**
GGC – SCUFN	The relationship and reporting lines for the 'parent-child' relationship between the GGC and SCUFN are described in SCUFN's ToRs and RoPs. This document is currently under revision and is not in scope of this review	ToRs and RoPs	nil
GGC – TSCOM	The relationship and reporting lines for the 'parent-child' relationship between the GGC and TSCOM are described in TSCOM's ToRs and RoPs.	ToRs and RoPs	See 13.2.2
GGC – SCRUM	The relationship and reporting lines for the 'parent-child' relationship between the GGC and SCRUM are described in SCRUM's ToRs and RoPs.	ToRs and RoPs	See 13.2.3
GGC – SCOPE	The relationship and reporting lines for the 'parent-child' relationship	ToRs and RoPs	See 13.2.4

	between the GGC and SCOPE are described in SCOPE's ToRs and RoPs.		
GGC – SCET	The relationship and reporting lines for the 'parent-child' relationship between the GGC and SCET are described in SCET's ToRs and RoPs.	ToRs and RoPs	See 13.2.5
GEBCO/SCOPE – Map the Gaps	There is currently no instrument that describes the relationship between any of the GEBCO bodies and the Not For Profit organization 'Map the Gaps'. In recent years, Map the Gaps has delivered what used to be the GEBCO Science week, now the Map the Gaps Symposium. Section 13.3.3 goes into more detail regarding the background and complexities regarding this situation, however given that Map the Gaps is an autonomous entity that draws a budget from GEBCO through SCOPE, an instrument of some kind should be put in place to describe the operating relationship.	Nil	1. **Develop an MoU or partnership agreement that clearly sets out the nature of the relationship between GEBCO and Map the Gaps. As a minimum this should set out clearly any joint decision making processes, liability, levels of autonomy and detail relating to branding and identify. See** Error! Reference source not found.
GGC – SB2030	A number of documents exist that describe the operation of Seabed 2030, however there have been many iterations of these documents since the inception of the project. Whilst the operation of SB2030 is out of scope of this review, a dedicated piece of work should be undertaken to ensure that the latest versions of these documents		1. **SB2030 Governance documentation should be reviewed, and the latest versions submitted to the GGC and SB2030 Sponsors to ensure that all parties are aware of the current governance arrangements. See** Error! Reference source not found.

	a submitted to the GGC for review.		
SCET/GGC – NF – GEBCO Training Programme	The Nippon Foundation GEBCO Training Programme is in its 20th Year and predates the creation of SCET. More detail as to the background is provided in **Error! Reference source not found.**, together with a specific recommendation for the oversight of the Programme. With the creation of SCET, it makes sense that the relationship between GEBCO's nominated lead for education and training have a formal relationship with the NF - GEBCO Training Programme and the Parent Organizations, as happens with all the other Courses/Educational Programmes sponsored by donors (e.g. administrative aspects, management of the course, selection of the candidates, etc.).	Nil	1. **Clarify the relationship between SCET and the NF – GEBCO Training Programme, especially as relates to oversight, and ensure that either existing instruments are adjusted, or new ones created to describe the governance arrangements.**
TSCOM - BODC	BODC manages the GEBCO website and, a number of other GEBCO assets on behalf of the GEBCO programme. In doing so it draws a budget from TSCOM. Currently there is no instrument which describes the nature of this relationship and what the expected service level/deliverables are.	Nil	1. **Develop and Service Level Agreement that describes agreed deliverables from BODC on behalf of TSCOM/GEBCO.**

9. **GEBCO Programme Work Structure**

As part of the Governance Review, the way in which GEBCO's programme of work is structured was investigated. In doing so, the general principles of progamme and project delivery were considered to identify where current work practices differed from the excepted norms. Specifically, the UK Government Functional Standard for Project Delivery was used as the primary reference.

Within this governance framework, the principle of work programme hierarchy is established. Organizing programmatic work into a sensible hierarchy allows an organization to make sure that the cascade of information, guidance and reporting flows correctly, which in turn allows for effective performance management. Figure 2 shows the relationship between portfolios, programmes, projects, related non-project work and specific work packages.
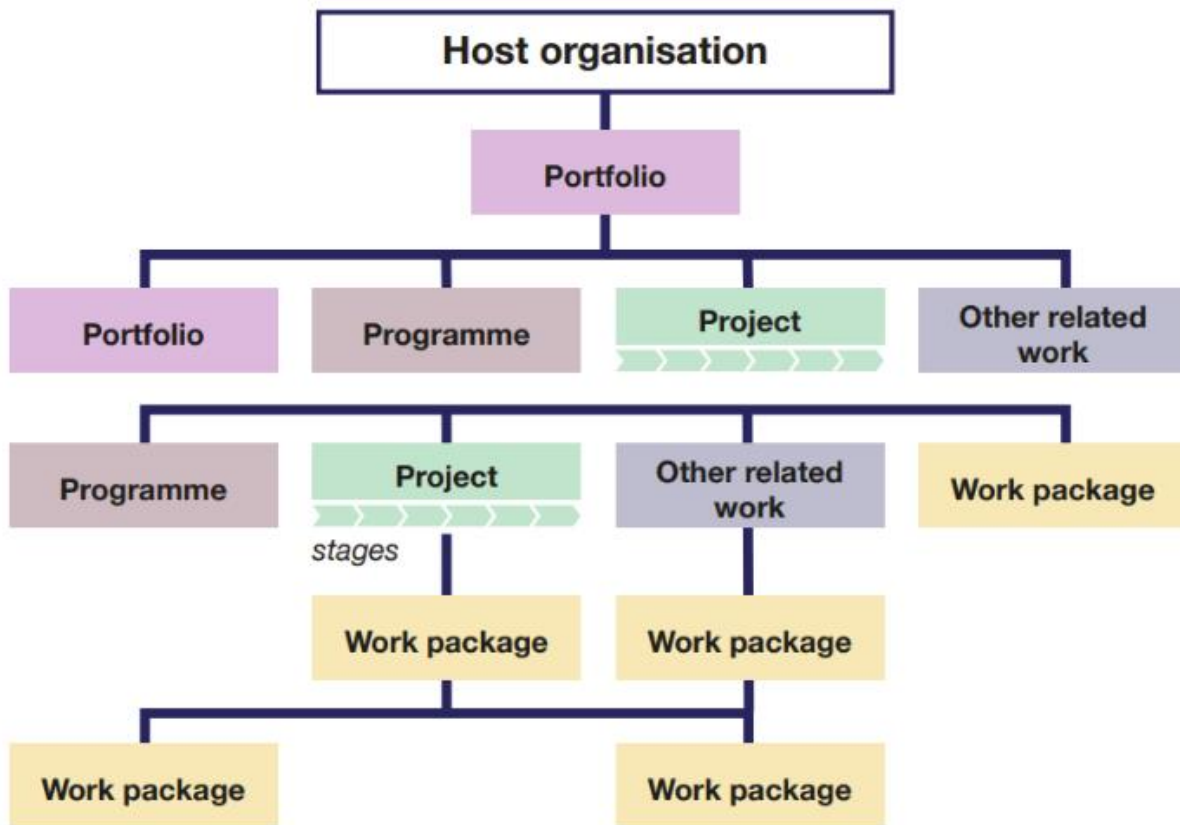

Figure 2 Programmatic Work Hierarchy (Reproduced from the UK Government Functional Standard for Project Delivery)

In considering how these principles might map across to the GEBCO Programme, it was also possible to identify whether the appropriate reporting and management bodies and practices were in place.

9.1. Current Programme Work Structure

In considering the current GEBCO Programme Work Structure, it was possible to map across from the generic work categories presented in the UK Government Functional Standard to the activity currently being undertaken within the programme. Figure 3 shows the current GEBCO Programme Work Structure, utilizing the same color coding as that presented in Figure 2.
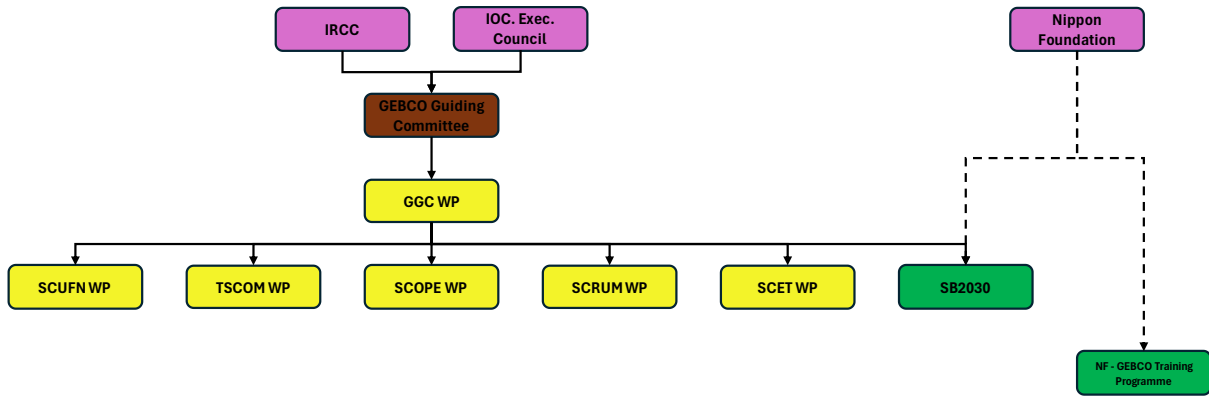
Figure 3 Suggested future GEBCO Work Programme Structure

Portfolio. Both the IRCC and the IOC Exec Council can be considered to manage portfolios of work of which the GEBCO Programme is a constituent part. Similarly, the NIPPON Foundation manages a portfolio of Programmes and Projects of which Seabed 2030 is one.

Programme. GEBCO itself is considered a programme, as it is enduring in nature and has within its work plan various activities that could be considered projects, work items or other non-project work.

Project. GEBCO has two main projects, the Seabed 2030 Project, and the GEBCO Training Programme, both of which are jointly managed with the Nippon Foundation as the main funding partner. It is possible that in the future, there may be other projects established and in doing so, careful consideration should be given to whether a dedicated programme management board needs to be established.

Work Package. GEBCO's programme of activity is currently described in a series of Work Plans. These work plans are analogous to Work Packages. The GGC has a master Work Plan which largely includes the delivery of the Work Plans of the Sub-Committees. However, in reality the work plans of the Sub-Committees are developed independently of the GGC and there is a question as to how the GGC can properly monitor performance.

9.2. Processes and Procedures

Within the work of GEBCO, there are a number of complex processes and procedures that are not covered by the ToRs and RoPs. These mainly relate to the management and oversight of the formal publications and products that GEBCO is responsible for. An example would be the procedure for the production of official GEBCO products, and how the appropriate checks and safeguards are put in place to ensure that international norms and best practices are observed. This is also important to ensure the protocols of the parent organizations are adhered to.

It is suggested that where these processes exist, they should be captured in a Standard Operating Procedure (SOP) or similar and maintained on a regular basis. Such documents should have a clear owner and reference that can be referred to in any continuous improvement schema.

9.3. Recommendations

In considering how well GEBCO's work programme structure conforms to excepted norms, it is obvious that there is very good alignment with the UK Government Functional Standard. However, what is unclear is how well the cascade of activity connects from discrete work items in each of the sub-committees work plans, through to the master work plan of the GGC and on to the objectives of the GEBCO Programme. This may well be because of the absence of a dedicated strategy and once complete, this should certainly be used to set clear measurement criteria that can be used to assess the relevance of activities to achieving GEBCO's aims.

Recommendation: Ensure there is a clear cascade and linkage between the objectives set out in the GEBCO Strategy and the individual work items included in the work plans.

As the number of Projects that GEBCO manages increases, consideration should be given as to whether a programme management board should be established with key stakeholders who can advise on and monitor delivery. This would ideally sit in between the Sub-Committees and the GGC or be a subset of the GGC.

Recommendation: Consider the creation of a dedicated programme management board.

In the absence of a programme management board, it appears that there is a need for dedicated programme management resources. While the Chair teams of the Sub-Committees have responsibility for the management of their individual work plans, as do the GGC of theirs, the Programme is so complex and made up of so many discrete activities (and associated budget lines), that ordinarily there would be a dedicated programme management resource that is responsible for monitoring and reporting on progress. This responsibility is beyond the scope of the role of any of the GGC Officials or the Secretary.

Recommendation: Consider the need for a dedicated GEBCO Programme Manager

10. Finance

The review of the financial situation as part of the governance review was limited to a review of the GEBCO budget, funding and approval process. This process has been revised and is described in Appendix G. of this report.

10.1.   Funding

The General Bathymetric Chart of the Oceans (GEBCO) programme, despite its significant size and importance, operates on a relatively modest budget. It secures funding from a variety of sources: approximately 10,000 Euros from the International Hydrographic Organization (IHO) budget, 8,000 Euros from the Government of Monaco, and 20,000 Euros biannually from the Intergovernmental Oceanographic Commission (IOC), though this latter amount is not directly transferred to GEBCO's central fund but is instead redistributed if not utilized. Notably, the Nippon Foundation stands out as GEBCO's largest benefactor, contributing roughly 4 million USD across both the Seabed 2030 (SB2030) and GEBCO Training Programmes, highlighting the foundation's significant investment in the advancement of oceanographic research and seabed mapping.

10.2.   Future ambition

It is a stated ambition, if not a necessity, for GEBCO to increase the funding it has available, as well as diversify its funding sources. In doing so, a dedicated funding strategy was commissioned in 2020 to identify options for how GEBCO could achieve this.

The resulting report detailed a number of approaches to soliciting funding, as well as options for how GEBCO would need to adapt its structure (and potential legal status) to accommodate these activities. This report is included at Appendix H. of this report.

Recommendation: The options proposed within the Funding Proposal report should be considered alongside the legal review once this governance review has been considered and an implementation plan produced. Consideration should also be given to work of the IHO Funding Project Team to avoid duplication and take advantage of synergies.

11. Legal Review

No full legal review has been conducted to date. In consultation with the legal advisor from the External Advisory Panel, it was agreed that until the GEBCO Strategy was in place, and in light of this the options set out in the funding Strategy had been considered by the GGC and Parent organizations, there would be limited benefit in undertaking this exercise.

Recommendation: A full review of the current and potential future legal status of the GEBCO Programme be commissioned. This review should consider the GEBCO Strategy and the previously commissioned Funding Strategy.

12. Risk Management

Risk management in the context of programme delivery involves identifying, assessing, and mitigating risks that could potentially impact the programme's success. This process is critical for several reasons:

Ensures Programme Objectives Are Met. By identifying and mitigating risks early, risk management helps ensure that the programme can achieve its objectives within the set timelines and budget.

Improves Decision Making. Through a structured approach to identifying and evaluating risks, programme managers can make informed decisions, prioritizing resources and efforts where they are most needed.

Enhances Resource Efficiency. Risk management allows for the efficient allocation of resources, ensuring that time, money, and other resources are invested in areas that mitigate significant risks and support the programme's success.

Increases Stakeholder Confidence. By demonstrating a proactive approach to identifying and managing risks, confidence among stakeholders (including future potential funders of the GEBCO Programme who may wish to do due diligence), that the programme will be delivered successfully.

Facilitates Continuous Improvement. By learning from identified risks and the outcomes of mitigation strategies, a Programme such as GEBCO can continuously improve their risk management practices and programme delivery capabilities.

In conducting the governance review, and specifically assessing the current GEBCO Programme work structure and practices, it is obvious that there is no discernable risk management process in place, nor does it appear to be considered in the designing of work items. Work plans include a very simplistic prioritization score against individual work items but only for the purposes of assigning budget.

Risk management is a key component of a Continuous Improvement process which is further elaborated on in section 13.3.

Recommendation: All bodies that have a work plan adopt a risk management process to support effective programme delivery

13. Analysis and Findings

Based upon organizational and functional mapping of the GEBCO Programme, the following findings have been identified. They are presented by organizational entity to aid discussion and validation. Each finding has been categorized by 'type' and where appropriate, a recommendation for onward action suggested. It should be noted that the suggested recommendations (where made) are to stimulate discussion and are subject to agreement by those bodies affected and ultimately endorsement by the GGC.

13.1. Parent Organizations

Table 2 provides a summary of the key finding relating to the two parent organizations. The review of existing governance instruments showed that the MoU between the two organizations predated key developments such as the UN Decade of Ocean Science for sustainable development and Seabed 2030.

Table 2 Parent Organization Findings

Finding Ref.	Type	Detail	Recommendation
IHO - IOC 1	Instrument	MoU between two organizations is out of date and predates SB2030 and the UN Ocean Decade	Review and update MoU
IHO – IOC 2	Instrument	No Mechanism to transfer funds between parent organizations	Develop partnership arrangement

13.2. Analysis of Key GEBCO bodies

13.2.1. GEBCO Guiding Committee

Table 3 summarizes the findings as relate to the GGC. The main themes relate to the membership of the GGC and the way that the modern portfolio of work is structured. The nature of the findings identified are largely a reflection of how the work of the GEBCO Programme has evolved over recent years into a complex portfolio of different work items.

One of the key challenges identified was the size and nature of the GGC, currently at 16 members. Further, there was a lack of clarity around the roles and responsibilities of the GGC members given that 10 are appointed by either IHO and IOC, 5 are Chairs of the Sub-Committees, and 1 is the ex-officio member by virtue of the role of the director of the DCDB. This structure makes the GGC large, flat in structure, and opaque when it comes to authority and circular reporting. It is felt that the structure of the GGC could be adapted to reduce its size and separate the functions of the executive strategic leadership, and the tactical programme manager functions.

Table 3 GGC Findings

Finding Ref.	Type	Detail	Recommendation
GGC 1	Instrument	ToRs largely fit for purpose but should be reviewed in light of the Strategy to ensure that objectives are consistent	**Review ToRs to ensure alignment with strategy**
GGC 2	Process	No portfolio/project board and lack of programme structure	**Consider these deficiencies when approving future versions of WPs**
GGC 3	Membership	Membership (especially Ex-Officio) is problematic in that there is the potential for conflict of interest where committee members are the recipient of GEBCO project funds	**Consider the make up of the GGC membership against new strategy and governance norms**
GGC 4	Finance	No formal guidance on financial management and accountability	**Note and include in financial review**
GGC 5	Membership	Unlike IHO/IOC appointed members of the GGC, it is not a condition of SC Chair's membership of GGC to be able to attend annual meetings, with associated T&S covered by their employer or individually.	**Develop a policy that makes it clear to what extent all members of the GGC are expected to fund their own travel.**
GGC 6	Membership	The number of GGC members (15) is quite large for a body such as GEBCO	**Consider the shape and size of the GGC**

GGC 7	Membership	The roles and responsibilities of GGC members are not clear, and further confused by the three categories of appointment.	**ToRs and GGC Membership list to clarify roles and responsibilities of GGC member and whether the categories of appointment support or hinder effective delivery of GGC business**

13.2.2. TSCOM

Table 4 summarizes the findings as they relate to TSCOM. TSCOM (with perhaps the exception of SCUFN) has the largest and most complex programme of work. As such, it has a number of functional relationships and dependencies on external entities. A number of the findings relate to how these relationships could be formalized and the potential for consolidating work items. It is likely that the latter will only be possible once the GEBCO Strategy has been completed.

Table 4 TSCOM Findings

Finding Ref.	Type	Detail	Recommendation
TSCOM 1	Instrument	ToRs largely fit for purpose but should be reviewed in light of the Strategy to ensure that objectives are consistent	**Review ToRs to ensure alignment with Strategy**
TSCOM 2	Operations	Work Plan is very complex and could be rationalised	**Rationalise work plan to reduce items and improve clarity**
TSCOM 3	Instrument	No instrument in place to describe the role of NOAA in hosting GEBCO Data in the DCDB	**Incorporate into IHO - DCDB MoU**
TSCOM 4	Instrument	No instrument in place to describe the role of NOC/BODC in managing the GEBCO website	**IHO/IOC to consider implementing an MoU**
TSCOM 5	Membership	Need for dedicated secretary that can accommodate more frequent meetings	**Identify a secretary from within the membership, establish terms of service and update ToRs accordingly**
TSCOM 6	Instrument	No formal instrument/agreement to describe interface with SB2030	**Conduct a review of the SB2030 Governance Documents**

TSCOM 7	Product	No formal statement of the ownership of GEBCO products	**Give all GEBCO products an IHO/IOC formal publication reference e.g. Digital Atlas**
TSCOM 8	Membership	Number of full members could hinder decision making and ability to be quorate.	**Review and potentially reduce number of full members – adjusting ToRs as required.**

13.2.3. SCRUM

Table 5 summarizes the findings as they relate to SCRUM. The main issue identified related to the work of SCRUM that supports other activities/bodies such as TSCOM and Seabed 2030. In discussion with the SCRUM Chair Team it is evident that this is likely to be an exercise in clarifying the wording in the work plan as opposed to materially adjusting any activity**.**

Table 5 SCRUM Findings

Finding Ref.	Type	Detail	Recommendation
SCRUM 1	Instrument	ToRs largely fit for purpose but should be reviewed in light of the Strategy to ensure that objectives are consistent	**Review ToRs to ensure alignment with Strategy**
SCRUM 2	Work Plan	Potential overlap in terms of scope with TSCOM/SB2030 - May just need clarification in Work Plan	**Work with other SCs and SB2030 team to review work plan and add notation where required to clarify areas of common interest**
SCRUM 3	Work Plan	Work plan is complicated and could be rationalised	**Review Work plan once strategy has been published and agree prioritisation**
SCRUM 4	Process	Timing of meetings could be adjusted to have one preparatory virtual meeting and one in person meeting alongside Map the Gaps and GGC	**SCRUM to consider and agree on a routine that works for membership**
SCRUM 5	Membership	Number of full members could hinder decision making and ability to be quorate.	**Review and potentially reduce number of full members – adjusting ToRs as required.**

13.2.4. SCOPE

Table 6 summarizes the findings as they relate to SCOPE. The main issues identified surround the interaction between SCOPE and the other GEBCO bodies, including the parent organizations. Given the purpose of SCOPE is to coordinate and support the outreach and communication requirements of the GEBCO Programme, strong coordination with the other GECBO bodies is essential. Further, the Parent Organizations being IGOs that are accountable to their member states, need to have a more effective means of supporting the work of SCOPE. It is felt this could be achieved by the creation of a new category of participation/membership for the Communication leads of the parent organization, together with the formalization of a process for review planned communication material.

Table 6 SCOPE Findings

Finding Ref.	Type	Detail	Recommendation
SCOPE 1	Instrument	ToRs largely fit for purpose but should be reviewed in light of the Strategy to ensure that objectives are consistent	**Review ToRs to ensure alignment with Strategy**
SCOPE 2	Process	Potential need to define a formal process for approval of comms material that affects other SCs or bodies.	**Define process diagram that can be appended to ToRs**
SCOPE 3	Process	Timing of meetings could be adjusted to have one preparatory virtual meeting and one in person meeting alongside Map the Gaps and GGC	**SCRUM to consider and agree on a routine that works for membership**
SCOPE 4	Membership	Role of Reps of IHO/IOC unclear and process for reviewing outward communications activity not in place.	**Consider a new category of participation of IHO/IOC Comms Reps in SCOPE**
SCOPE 5	Membership	Number of full members could hinder decision making and ability to be quorate.	**Review and potentially reduce number of full members – adjusting ToRs as required.**
SCOPE 6	Relationship	Formal relationship between Map the Gaps and SCOPE/GEBCO is unclear and undocumented.	**Relationship should be clarified and formalized via an appropriate instrument.**

13.2.5. SCET

SCET is the newest Sub-Committee and is still in its initiation phase. As a consequence, the only finding relates to the need to review the ToRs once the new GEBCO Strategy has been developed.

13.3. Ancillary Bodies, Entities and Activities

In addition to the GEBCO Sub-Committees, there are several bodies, entities and activities that GEBCO either collaborates on or with to deliver its objectives. The governance that surrounds these endeavors is briefly described below, but in all cases, further work may be required to fully review the associated working practices once the core GEBCO governance has been refreshed.

13.3.1. Nippon Foundation GEBCO Seabed 2030 Project

The Nippon Foundation-GEBCO Seabed 2030 (SB2030) Project is a collaborative project aimed at mapping the entire ocean floor by the year 2030. This initiative seeks to bring together existing data with new information obtained through various mapping efforts to create a comprehensive, freely available map of the world's seabed. The project is a partnership between The Nippon Foundation, a private philanthropic organization in Japan, and GEBCO.

SB2030 reports annually to the GGC on progress and is supported by a Strategic Advisory Group. In addition, a SB2030 'Sponsors' meeting is convened at least annually where items of mutual strategic interest are discussed informally. As described in 8.3, whilst SB2030 the internal management of SB2030 was out of scope of this governance review, the existing governance documentation should be reviewed and submitted to the GGC (and other concerned parties) for consideration.

One challenge identified with involving the GGC in the planning of SB2030 activity is the differing reporting years associated with the Nippon Foundation and the senior bodies of the Parent Organizations. This may be helped by an adjustment to the structure of the GGC or the creation of a Programme Management Board as recommended in 9.2.

13.3.2. Nippon Foundation – GEBCO Training Programme

The Nippon Foundation – GEBCO Training Programme, delivered at UNH is in its 20th year. In addition to seven students currently at UNH, 112 scholars, from 45 countries have been through the course. Following the Alumni gathering in Tokyo in August of 2023, a detailed survey of the Alumni was conducted to better understand how well the program meets current and future needs. The results of this review are currently under discussion with the Nippon Foundation. The review will be completed in time to introduce any changes for the 21st year of the programme starting in September 2024.

The course is funded by the Nippon Foundation and delivered by the University of New Hampshire. The funds are held by the IHO on behalf of the UNH and re-distributed as required.

It was reported to GGC 40 that "the NF Project Management Committee has oversight, on behalf of the GGC, of the training programme at UNH and other NF funded projects; not including Seabed 2030. Current members are Robin Falconer (chair), Shin Tani, Martin

Jakobsson, Hugo Montoro, Taisei Morishita, Dave Monahan and Rochelle Wigley. However, it is not clear what the status of this committee is, and no governance documentation describing its remit has been identified. The role of the two parent organizations (IHO and IOC) is unclear, and is notably different from the management of other donor funded educational programmes that exist. As recommended in 8.3, consideration should be given as to the relationship between the NF – GEBCO Training Programme and SCET, especially as relates to oversight, and appropriate governance instruments should be put in place. In any case, some manner of formal oversight or external guidance should be available to those delivering the Training Programme.

13.3.3. Map the Gaps

Map the Gaps (MtGs) non-profit organization registered in the USA, is focused exclusively on ocean floor exploration and committed to providing open-access data via international collaboration. MtGs is overseen by a board of five directors and is engaged in a range of projects around the world. In recent years, MtGs has delivered the eponymous annual symposium which evolved from the original GEBCO Science Week. MtGs delivers the symposium as part of the SCOPE Work Programme and as such receives funding from GEBCO. As reported in 8.3, there is no governance instrument in place that describes either the relationship between MtGs and GEBCO, nor the associated roles and responsibilities. It is not clear whether MtGs is delivering the symposium for GEBCO, or whether GEBCO is supporting an independent activity that supports the mutual aims of both organizations. This situation should be clarified as recommended in 8.3.

14. Continuous Improvement

A key component of this governance review is the proposal for a continuous improvement process that would help GEBCO evolve alongside good governance whilst negating the need for another full review in the future. In considering the gaps in risk and programme management processes, together with the key characteristics of the GEBCO programme, it is suggested that implementing a continuous improvement process that integrates an issues log and risk register could significantly enhance the effectiveness, efficiency, and safety of the programme. Below is a tailored proposal outlining a structured approach to developing such a mechanism which is adapted from those principles set out in ISO 21500:2021 and ISO 21502:2020.

Continuous Improvement Process Proposal for the GEBCO Programme

Objective: Establish a framework for continuous improvement within the GEBCO Programme, leveraging an issues log and risk register to identify, assess, and mitigate risks and issues promptly and effectively.

Issues Log. A key component of any continuous improvement process is an issues log. This is a simple means of capturing any issues or observations during the delivery of the work plan, or in the conducting of meetings, undertaking an initial analysis of the nature of the issue, identifying or connecting to any specific programme risks, agreeing a priority for resolution and tracking progress. Such an issues log could take the form of a spreadsheet and could be held centrally at the GGC level or individually at the Sub-Committee level.

Risk Register. Develop a comprehensive risk register that identifies potential risks, their likelihood, impact, and strategies for mitigation. This register should be dynamic, allowing for the addition of new risks as they are identified.

Linking the Issues Log and Risk Register. Establish a process where issues from the log are reviewed to identify new risks or reassess existing ones in the risk register. This integration ensures that the programme is proactive in risk management.

Regular Review. The review of the issues log and risk register should be built into the standing agendas of the annual meetings of the GGC and Sub-Committees. Key risks and issues should be included in the annual reporting of the GGC to the IHO IRCC and the IOC Executive Council.

Continuous Improvement Culture. It is important to embed a culture of continuous improvement by encouraging all GEBCO contributors to engage in identifying risks and issues. This should be an expectation of those proposing work items, especially those for which GEBCO funding is being allocated.

Lessons Identified. On completion of key pieces of work, where a risk is successfully mitigated or an issue is appropriately managed, time should be taken to identify any lessons that would be useful consideration when undertaking future activity. These lessons can be included in the issues log.

Performance measurement. Whilst developing dedicated key performance indicators relating to risk and issues management would probably be overkill for a programme such as GEBCO, a general review as to the utility of the process and whether it is fit for purpose should be encouraged.

Feedback Mechanism. Create a mechanism for receiving feedback on the continuous improvement process from team members and stakeholders. Use this feedback to refine and enhance the process continuously.

Recommendation: Consider the proposal for a continuous improvement process and implement into GEBCO Programme business as usual practices.

15. Conclusion and Next Steps

15.1. Key Observations

The governance review process was significantly more extensive and complex than initially anticipated, highlighting the intricate nature of the structures involved. Central to the issues identified were the need for better formalization of processes and a clearer definition of roles, responsibilities, and accountabilities, which combined may result in a systemic lack of clarity that could hamper operational effectiveness. A key gap identified was the absence of dedicated programme management resource which would ideally bridge the operational gap between the Sub-Committee Chairs and the GGC.

A key finding is the need to review the GGC in terms of its size, structure, and function. This reform is deemed essential and should involve the parent organizations. Further, particular care should be taken to avoid dilution of purpose and effectiveness by expanding the GGC membership in the quest for inclusivity.

As GEBCO continues on its growth trajectory, it's clear that its governance practices must evolve in tandem to support this development effectively. The absence of a GEBCO strategy during the governance review limited the ability to pinpoint specific structural reforms. This highlights the necessity for future governance iterations to be closely aligned with the new strategy once in place, integrating a continuous improvement regime as a fundamental aspect of GEBCO's operational ethos. Together, these observations paint a picture of an organization at a crossroads, where strategic planning, clarity in governance, and the establishment of dedicated management resources are critical for its future direction and effectiveness.

15.2.   List of Recommendations

Table 7. lists all Recommendations that have been discussed in this report. They are provided here with the corresponding section number and subject area. Table 7 is provided as aid to assessing the findings in this report and care should be taken to read them in the context of the analysis provided in the corresponding sections.

Table 7 Summary of Recommendations

Section Number	Subject	Recommendation
8.1	Organizational Structure	The organizational diagram should be reviewed by the GGC with a definitive version agreed and included in the ToRs and RoPs of the GGC.
8.3	Relationship and Reporting Mapping – IHO – IOC	The MoU should be revisited and refreshed to make sure it reflects all current endeavors.
8.3	Relationship and Reporting Mapping – IHO – IOC	A partnership arrangement should be established between the two organizations to allow the distribution/holding of funds in the central GEBCO fund at the IHO.
8.3	Relationship and Reporting Mapping – IHO – NOAA (DCDB)	Review the MoU periodically or after any organizational change to ensure it is current and fit for purpose.
8.3	Relationship and Reporting Mapping – IHO/IOC - GEBCO	The exact status of the GGC should be clarified as it relates to the IHO operating structure.
8.3	Relationship and Reporting Mapping – IHO/IOC - GEBCO	The ToRs and RoPs should be updated to reflect the GGC38 decision to reclassify the GEBCO Project as a Programme.

8.3	Relationship and Reporting Mapping – GBECO/SCOPE – Map the Gaps	Develop an MoU or partnership agreement that clearly sets out the nature of the relationship between GEBCO and Map the Gaps. As a minimum this should set out clearly any joint decision-making processes, liability, levels of autonomy and detail relating to branding and identify.
8.3	GGC – SB2030	SB2030 Governance documentation should be reviewed, and the latest versions submitted to the GGC and SB2030 Sponsors to ensure that all parties are aware of the current governance arrangements.
8.3	Relationship and Reporting Mapping – SCET/GGC – NF – GEBCO Training Programme	Clarify the relationship between SCET and the NF – GEBCO Training Programme, especially as relates to oversight, and ensure that either existing instruments are adjusted, or new ones created to describe the governance arrangements.
8.3	Relationship and Reporting Mapping – TSCOM - BODC	Develop and Service Level Agreement that describes agreed deliverables from BODC on behalf of TSCOM/GEBCO.
9.3	Current Programme Work Structure	Ensure there is a clear cascade and linkage between the objectives set out in the GEBCO Strategy and the individual work items included in the work plans.
9.3	Current Programme Work Structure	Consider the creation of a dedicated programme management board.
9.3	Current Programme Work Structure	Consider the need for a dedicated GEBCO Programme Manager.
10.2	Finance – Future Ambition	The options proposed within the Funding Proposal report should be considered alongside the legal review once this governance review has been considered and an implementation plan produced. Consideration should also be given to work of the IHO Funding Project Team to avoid duplication and take advantage of synergies.

11	Legal Review	A full review of the current and potential future legal status of the GEBCO Programme be commissioned. This review should consider the GEBCO Strategy and the previously commissioned Funding Strategy.
12	Risk Management	All bodies that have a work plan adopt a risk management process to support effective programme delivery.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Review ToRs to ensure alignment with strategy.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Consider these deficiencies when approving future versions of WPs.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Consider the make up of the GGC membership against new strategy and governance norms.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Note and include in financial review.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Develop a policy that makes it clear to what extent all members of the GGC are expected to fund their own travel.
13.2.1	Analysis of Key GEBCO Bodies - GGC	Consider the shape and size of the GGC.
13.2.1	Analysis of Key GEBCO Bodies - GGC	ToRs and GGC Membership list to clarify roles and responsibilities of GGC member and whether the categories of appointment support or hinder effective delivery of GGC business.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Review ToRs to ensure alignment with Strategy.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Rationalise work plan to reduce items and improve clarity.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Incorporate into IHO - DCDB MoU
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	IHO/IOC to consider implementing an MoU.

13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Identify a secretary from within the membership, establish terms of service and update ToRs accordingly
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Conduct a review of the SB2030 Governance Documents.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Give all GEBCO products an IHO/IOC formal publication reference e.g. Digital Atlas.
13.2.2	Analysis of Key GEBCO Bodies - TSCOM	Review and potentially reduce number of full members – adjusting ToRs as required.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Review ToRs to ensure alignment with Strategy.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Work with other SCs and SB2030 team to review work plan and add notation where required to clarify areas of common interest.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Review Work plan once strategy has been published and agree prioritization.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	SCRUM to consider and agree on a routine that works for membership.
13.2.3	Analysis of Key GEBCO Bodies - SCRUM	Review and potentially reduce number of full members – adjusting ToRs as required.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Review ToRs to ensure alignment with Strategy.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Define process diagram that can be appended to ToRs.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	SCRUM to consider and agree on a routine that works for membership.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Consider a new category of participation of IHO/IOC Comms Reps in SCOPE.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Review and potentially reduce number of full members – adjusting ToRs as required.
13.2.4	Analysis of Key GEBCO Bodies - SCOPE	Relationship should be clarified and formalized via an appropriate instrument.

14	Continuous Improvement	Consider the proposal for a continuous improvement process and implement into GEBCO Programme business as usual practices.

15.3.   Next steps and future activities

The following next steps are presented for consideration subject to discussion by the GGC and other key stakeholders:

Presentation of Report. The report will be submitted for the consideration of the GGC as set out in the GGRPT ToRs and RoPs.

Individual Consideration of Recommendations. These recommendations are to be evaluated either by the GGC as a whole or by a designated sub-group. This step ensures focused attention on each suggestion, facilitating thorough analysis and decision-making. Care should be taken when deciding whether or not to implement a recommendation, as some recommendations may or may not be mutually exclusive.

Development of Implementation Plan. A structured plan for implementing the agreed-upon recommendations should be developed. This plan will serve as a roadmap, outlining the steps necessary to deliver the desired changes and improvements.

Integration of Continuous Improvement Regime. There is a clear directive to embed a continuous improvement framework into the working practices of all committees and subcommittees. This approach aims to foster an ongoing culture of evaluation and enhancement, ensuring that governance mechanisms evolve in line with organizational needs and challenges.

Governance Review of SCUFN. A specific governance review using the same model employed for the broader analysis could be conducted for the Sub-Committee on Undersea Feature Names (SCUFN). This targeted review will assess SCUFN's governance structures and processes, with findings to be reported back to the GGC.

Review of SB2030 Oversight. An examination focused on the oversight of the Seabed 2030 (SB2030) project could be considered. Such a review should consider how GEBCO's governance needs to adapt to support a growing portfolio of projects and programmes. It is crucial that this review is conducted with caution to avoid disrupting the operations of SB2030, which is recognized as a well-functioning project. Further, any review should be discussed and planned in consultation with the Nippon Foundation and Parent organizations to ensure it adheres to and meets the needs of all parties.

Review of the legal status of GEBCO. Depending on the outcome of the GEBCO Strategy activity, and in considering the future ambition of GEBCO to undertake fundraising for future activities, a targeted review of the options for the future legal status of GEBCO should be undertaken. This should ideally be led by the Parent Organizations.