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Reports of Meetings of Experts and Equivalent Bodies



IOC Group of Experts on Capacity Development

Sixth Session

Oostende, Belgium
22-24 October 2024

UNESCO

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1. OPENING AND INTRODUCTIONS

The Sixth Session of the Group of Experts on Capacity Development was held on 22-24 October 2024 at the InnovOcean Campus, Oostende, Belgium. The meeting was opened at 0930 CET by Mr Alan Evans, Chair of the Group of Experts on Capacity Development (GE-CD).

1.1 ADDRESS BY THE CHAIR

Mr Alan Evans thanked all the participants for joining the sixth session of the GE-CD in-person. He highlighted the central role of capacity development in the IOC value chain as one of its core functions and how the Group contributes to the continuous improvement of the IOC capacity development programme.

Mr Peter Pissierssens, Head IOC Project Office for IODE and IOC CD Coordinator, briefly welcomed the participants, provided some logistical information and introduced the working documents.

1.2 TOUR-DE-TABLE (INTRODUCTIONS)

Ms Johanna Diwa, IOC CD Assistant Coordinator, gave an overview of the outcomes of the GE-CD membership renewal process. She recalled that following the decision of the 57th Session of the Executive Council to renew the GE-CD and revise its Terms of Reference in June 2024, IOC Circular Letter 3001 was issued to invite Member States to submit the information of their nominated experts including a brief biography highlighting their experience on capacity development. 45 nominations were received. The IOC Executive Secretary approved the GE-CD list with 29 members. The complete list is available at <https://oceanexpert.org/group/540> and included below.

Mr Pissierssens recalled that members of the Group have been selected based on their personal expertise and background and not as Member State representatives. The current membership is quite wide in expertise, national and international responsibilities, geographic and gender distribution which will hopefully contribute to a productive meeting and useful outcomes of the work of the Group.

EXPERT	MEMBER STATE
Barrientos Carlos	Argentina
Karim Ahmad	Bangladesh
Lescrauwaet Ann-Katrien	Belgium
Sohou Zacharie	Benin
Zhao Chang	China
Correa Laura	Colombia
Recalde Sonia	Ecuador
El-Gharabawy Suzan	Egypt
Lahl Rebecca	Germany
Bonilla Mejia Italo	Honduras
Madona Madona	Indonesia
Al-Shawi Imad	Iraq
O'Sullivan David	Ireland
Fujii Masahiko	Japan
Torres Carlos	Mexico
Kossmann Gabriella	Norway
Al Jufaili Saud	Oman
Mahmood Tariq	Pakistan
Stepanova Natalia	Russian Federation
Eyouni Lina	Saudi Arabia
Ndao Massata	Senegal
Gulekana Mthuthuzeli	South Africa
Aslanoglu Yesim	Turkiye
Komorin Viktor	Ukraine
Mezhoud Nahla	United Arab Emirates
Jebri Fatma	United Kingdom of Great Britain and Northern Ireland
Naughton Joe	United States of America
Suarez Ana	Venezuela
Doan Hai	Vietnam

1.3 ADOPTION OF THE AGENDA AND TIMETABLE

Ms Diwa invited the Group to review and adopt the provisional agenda (Document IOC/GECD-VI/ProvAgenda) available from the meeting page on <https://oceanexpert.org/event/4375#agenda>. The Group was requested to note that all working documents were made available only as on-line documents. The list of participants is attached in [Annex II](#).

Ms Diwa then presented the provisional timetable and invited the Group to review and adopt the timetable (Document IOC/GECD-VI/Timetable) She informed the Group that the meeting

would be held for 2.5 days from Tuesday to Thursday. Day 3 would end earlier around lunch time, followed by a site visit to the VLIZ Marine Station.

She then reviewed the arrangements for the session and presented the list of documents available online through <https://oceanexpert.org/event/4375#documents>. She noted that the main working document for the Session would be the Annotated Agenda (this document).

She also reminded the Group that as earlier requested, the comments/questions that were received in advance were lined up for discussion at the plenary. Accordingly, as the time allotted for the discussion is limited, participants were urged to carefully read this document and the working documents in advance for the preparation for the Session.

All draft Recommendations and draft Decisions were included in the Action Paper and were briefly reviewed during the concerned agenda item for final adoption at the end of the Session.

No other business was proposed.

The Group adopted the agenda and the timetable. It is attached to this report as [Annex I](#).

2. OVERVIEW OF GE-CD AND PAST SESSIONS

2.1 GE-CD SESSIONS I-V

This agenda item was introduced by Ms Johanna Diwa. She gave an overview of the first five sessions of the Group and their important contributions in delivering critical work on capacity development, especially in the adoption of the new IOC Capacity Development Strategy 2023-2030.

She recalled that shortly after adopting the IOC Capacity Development Strategy (2015–2021) the IOC Assembly at its 29th Session in 2017, the IOC Assembly established the IOC Group of Experts on Capacity Development (Decision IOC-XXIX/10.1), primarily to assist the global and regional programmes with the implementation of capacity development (CD) needs assessments, the development of related work plans, mobilization of resources, and provide advice on relevant methods and tools to deliver CD.

The First Session of the IOC Group of Experts on Capacity Development was held in Paris between 21-23 March 2018. A Task Team on the implementation of a TMT/CHM "portal" and related activities was convened and held its first meeting in March 2019. The meeting discussed the results of a survey (on CD needs assessment and on the clearing house mechanism – ([IOC Circular Letter 2738](#))) which was launched on 5 October 2018 until 14 February 2019. It focused on the three regional sub-commissions (IOCAFRICA, IOCARIBE, WESTPAC) and regional committee IOCIDIO, including SIDS.

Some of the key deliverables of the group from its first five sessions include the establishment of the CHM that resulted to the Ocean Info Hub project, the establishment and conduct of regular biennial capacity development needs survey, providing advice and assistance in various CD related initiatives with other organizations, the revision and preparation of the IOC CD Strategy 2023-2030, the development of the Ocean Capacity Development (CD) Hub among others.

The Assembly, at its 31st Session, through IOC Decision A-31/3.5.3, instructed the GE-CD to conduct a review of the IOC Capacity Development Strategy, and accordingly revised its Terms of Reference. The Assembly, at its 32nd Session, through Decision A-32/4.3, adopted the new IOC Capacity Development Strategy 2023-2030 (IOC/A- 32/4.3.Doc1).

Following the adoption of the new Strategy and the completion of the tasks of the past GE-CD membership under its revised ToR in line with the IOC Decision A-31/3.5.3, and considering the workplan related to the new Strategy, the Group agreed at the 4th session of the GE-CD that the Terms of Reference should again be revised to reflect the work required for the new IOC Capacity Development Strategy 2023-2030, including the development of an implementation plan.

2.2 EC-57 OUTCOMES AND INSTRUCTIONS FOR IOC33

2.2.1 Revision of the GE-CD TORs

Mr Alan Evans introduced this agenda item. He recalled that the fifth meeting of the IOC Group of Experts on Capacity Development ([IOC/GE-CD-V/3](#)), held from 27 to 29 February 2024, provided an opportunity to assess the work of the group and its results in support of the IOC Capacity Development Secretariat. It was proposed that the 57th session of the Executive Council renews the Group of Experts on Capacity Development (GE-CD) with revised terms of reference to reflect the continuation of the work required including the development of an implementation plan for the IOC Capacity Development Strategy to be presented to the IOC Assembly at its 33rd Session in 2025. In this way, new and existing CD initiatives and efforts supporting the six outputs (with 16 activities detailed in 31 actions) of the new IOC CD Strategy will benefit from the continued role of the Group of Experts in informing and, where relevant, assisting the CD Secretariat in implementing IOC CD activities.

The proposed revised Terms of Reference in accordance with the requirements of the new IOC Capacity Development Strategy 2023–2030, taking into account consultations with the global programmes and regional subsidiary bodies for their regional CD workplans, were presented at the 57th Session of the IOC Executive Council in June 2024. [Decision IOC/EC-57/4.6](#) renewed the role of the GE-CD with the following revised Terms of Reference.

Decision IOC/EC-57/4.6

Implementation of the IOC Capacity Development Strategy (2023-2030)

The Executive Council,

Having examined document IOC/EC-57/4.6.Doc(1) and report IOC/GE-CD-V/3,

Recognizing the importance of Capacity Development as one of the six functions of the IOC Medium-Term Strategy (2022–2029), enabling all Member States to participate in, and benefit from, ocean research and services that are vital to sustainable development and human welfare on the planet,

Recalling the adoption of the IOC Capacity Development Strategy 2023–2030 through IOC Decision A-32/4.3,

Mindful of the role of the GE-CD in informing and, where relevant, assisting the Secretariat in implementing IOC Capacity Development initiatives,

Decides to continue the role of the IOC Group of Experts on Capacity Development and to revise its Terms of Reference as in the annex to this decision;

Annex to Dec. EC-57/4.6

**Terms of Reference
IOC Group of Experts on Capacity Development (GE-CD)**

The IOC Group of Experts on Capacity Development (GE-CD) is composed of experts nominated by IOC Member States responding to a call by circular letter detailing the GE-CD membership.

The IOC Group of Experts on Capacity Development (GE-CD) is responsible for the following tasks:

1. assist global and regional programmes with the implementation of capacity development needs assessments in a consistent manner;
2. also assist global and regional programmes with the development of programmatic and regionally relevant capacity development work plans based on the IOC CD strategy and related needs assessments, building on ongoing activities and making use of existing training and education facilities;
3. develop an implementation plan for the current IOC CD Strategy 2023-2030 for submission to the IOC Assembly at its 33rd session in June 2025;
4. provide advice to global and regional programmes on the implementation of the IOC Capacity Development Strategy 2023–2030 and on relevant methods and tools to improve the quality and impact of CD efforts;
5. advise the IOC CD Secretariat on the design and implementation of the biennial CD survey in close collaboration with the regions, possibly including CD implementation impact monitoring/metrics, also taking into account other methods such as regional reviews, science conferences, etc.;
6. ensure coordination of the work of the Group of Experts and its Task Teams with GOSR and CD aspects of the United Nations Decade of Ocean Science for Sustainable Development, including the Capacity Development Facility and Working Group 9 of the Vision 2030;
7. guide the further development and promotion of the Ocean CD-Hub by highlighting linkages of CD activities and collaboration opportunities between users and providers and among other global, regional and national organizations;
8. provide advice to Member States on the promotion of visibility and reach of the IOC Capacity Development Strategy 2023-2030 to assist with the planning and implementation of their capacity development efforts;
9. report results to the Assembly at its 33rd session.

There was a brief discussion on “Vision 2030” which refers to the Ocean Decade Vision 2030. While Member States may have national decade activities the intention is to have a common vision. It was further noted that the mandate of the GE-CD does not end in 2030. The White Paper on WG9 of the Ocean Decade is available for reference to the Group as one of the background document from <https://oceanexpert.org/document/35130>

There was a question on items (iii) and (iv) noting that the RSBs already implement CD. It was clarified that the IOC CD strategy is an overarching framework that motivates the development of an implementation plan responding to the CD strategy’s six outputs. What is in the strategy refers to more than what IOC can deliver so there is still the need to work with other organizations on capacity development to address outputs beyond the mandate of IOC. The

Ocean CD-Hub can make it possible to share resources within each and across regions and to assist with the necessary match-making between offer and demand.

The Group commended the outputs of the previous sessions of the IOC GE-CD and noted the tasks to be delivered under the revised Terms of Reference.

The Group noted and agreed to deliver the tasks required in the GE-CD Terms of Reference.

The Group was requested to consider joining their respective Working Group/Task Team which were to be formed on Day 2 of the meeting (see 5.1).

3. IOC CD STRATEGY, CD ACTIVITIES AND NEEDS

3.1 IOC CAPACITY DEVELOPMENT STRATEGY 2023-2030

This agenda item was introduced by Ms Johanna Diwa. She recalled that the Assembly, at its 32nd session, adopted the IOC Capacity Development Strategy for 2023–2030 together with a proposed outreach and communication plan through [IOC Decision A-32/4.3](#). The key updates made in the strategy resulted in a slightly shortened version, removed references relating to selected projects, and were instead captured by the Ocean CD-Hub, an online compendium of CD opportunities worldwide. The Executive Summary incorporated an increased recognition that the ocean plays in political, commercial, science circles and society and the importance of capacity development in the delivery of the UN Ocean Decade. It also highlighted IOC's critical role in fostering international cooperation while using the strategy as the motivation to develop an implementation plan, such that IOC Capacity Development activities are clearly articulated and that the benefits are more readily identified.

The IOC Capacity Development Strategy 2023–2030 maintained the original six outputs, with 16 activities detailed in 31 actions. It was noted that while this framework provides general guidance on elements of capacity development, an implementation plan is yet to be developed and venues for elevating IOC's impact to the required scale to be further explored.

Ms Diwa presented the actions and decisions adopted by the Assembly through IOC Decision A-32/4.3, which includes the follow-up actions expected by the 33rd IOC Assembly in 2025.

IOC Decision A-32/4.3

IOC Capacity Development Strategy (2023–2030) and related Outreach and Communication Plan

The Assembly,

Recognizing the importance of Capacity Development as one of the six functions of the IOC Medium-Term Strategy (2022–2029), enabling all Member States to participate in, and benefit from, ocean research and services that are vital to sustainable development and human welfare on the planet,

Recalling the adoption, at its 28th session, of the IOC Capacity Development Strategy (2015– 2021),

Noting that the current Strategy will expire in July 2023,

Noting also that through IOC Decision A-31/3.5.3, the Assembly revised the Terms of Reference of the Group of Experts on Capacity Development (GE-CD), instructing the Group to submit an updated IOC Capacity Development Strategy and a proposed outreach and communications plan to the Assembly,

Having examined documents IOC/A-32/4.3.Doc(1) and IOC/A-32/4.3.Doc(2),

Adopts the IOC Capacity Development Strategy, 2023–2030 as contained in document IOC/A- 32/4.3.Doc(1);

Adopts also the Outreach and Communications plan for the IOC Capacity Development Strategy, 2023–2030 as contained in document IOC/A-32/4.3.Doc(2);

Agrees that, by the 33rd Session of the IOC Assembly, IOC Primary Subsidiary Bodies (global programmes and Regional Subsidiary Bodies) should take the following actions:

- (i) develop programmatic and regionally relevant capacity development work plans based on this strategy and related needs assessments conducted in a consistent manner, building on on-going activities and making use of existing training and education facilities;
- (ii) mobilize resources in order to reinforce the Secretariat staffing of the regional Sub- Commissions, other subsidiary bodies and global programmes;
- (iii) promote the visibility and reach of the IOC Capacity Development Strategy 2023– 2030 in accordance to the outreach and communications plan to reach its target audience and appreciate the document as a guide in implementing capacity development activities;
- (iv) catalyze capacity development through global, regional, and national programme development; and
- (v) enhance collaboration and communication between its global programmes and Regional Subsidiary Bodies, to contribute to (i) and (ii) above;

Urges IOC Member States to:

- (i) identify new opportunities to participate in, and benefit from, reinforced partnerships through the IOC to achieve their capacity development goals in marine science and ocean governance;
- (ii) mobilize the knowledge, personnel, infrastructural and financial resources to support IOC's catalytic role in helping Member States achieve these goals; and
- (iii) raise the visibility of IOC's unique niche in capacity development.

Ms Diwa recalled that the 5th session of the Group of Experts on Capacity Development recommended that the global and regional programmes prepare their draft CD workplans to share in the discussions at the sixth GE-CD session in time for the 33rd Session of the IOC

Assembly in June 2025. Thus the next agenda item of the meeting requested the IOC global and regional programmes to present their existing CD initiatives vis-à-vis the IOC CD Strategy. The activity aims to see where IOC global and regional programmes contribute to capacity development activities of the IOC and help identify potential initiatives in areas where needs and gaps were identified. These inputs will also be considered in the preparation of the implementation plan for the IOC CD Strategy 2023-2030.

Members of the Group requested some clarifications regarding the timeline for completion of the activities. It was clarified that the timeline runs until 2030. While it will indicate success if there were activities delivered under all actions and outputs, Mr Alan Evans clarified that the framework is only a guideline and the matrix for the CD priority needs will be further developed and updated.

Some members shared different realities when it comes to 'support for young scientists/women in science' as there are now more women scientists than male scientists in their countries. It was suggested to look at this point again in future versions of the strategy.

3.2 IOC CD ACTIVITIES AND NEEDS (GLOBAL PROGRAMMES)

3.2.1 Ocean Science Section

This agenda item was introduced by Mr. Henrik Eneveoldsen, a.i. Head of the IOC Ocean Science Section. His presentation is available from <https://oceanexpert.org/document/35121>.

The Ocean Science section of IOC/UNESCO has developed and continues capacity development programmes for each of its core projects, namely for Harmful Algal Blooms, The International Phytoplankton Intercomparison, Ocean Acidification, Deoxygenation and Blue Carbon.

For Harmful Algae, annual courses in close collaboration with the University of Copenhagen have taken place consisting of e-learning in OTGA and practical identification, leading to an exam qualifying for the 'IOC Certificate of Proficiency in Identification of Harmful Marine Microalgae'. The courses on Harmful algae are fully demand-driven by the Member States and primarily user funded. In-country training courses in collaboration with FAO, IAEA and IOC regional capacity development activities in WESTAPC and IOCARIBE further strengthen the IOC's strong position on capacity development in this field.

The International Phytoplankton Intercomparison (IPI), run annually with around 90 participating laboratories by the IOC Science and Communication Centre in collaboration with The Canary Islands Harmful Algal Bloom Observatory at the University of Las Palmas de Gran Canaria, Spain, and the Marine Institute, Ireland, is a proficiency testing scheme for Phytoplankton analysts. IPI working towards accreditation as a Proficiency testing provider under ISO 17043 and ISO13528. Is also in the OTGA platform.

Ocean acidification is one of the core projects of the OSS, with IOC being the custodian agency for the Sustainable Development Goal (SDG) Indicator 14.3.1 calling for "Average marine acidity (pH) measured at agreed suite of representative sampling stations". The OSS Secretariat has developed an online introduction course on OTGA, which has been successfully implemented in the Pacific Islands in 2022 with the support of the expert lecturers. Following high demand, the course will be repeated in different Regions, with one training taking place in Africa in 2024. New course content with regional topics and translation of the

course into French and Spanish are planned. The Secretariat also runs online trainings and webinars for national agencies and IOC focal points to advance the capacity of Member States to report towards SDG 14.3.1. A capacity development strategy for the Global Ocean Acidification Observing Network (GOA-ON) and the UN Ocean Decade endorsed programme Ocean Acidification Research for Sustainability (OARS) are currently being developed together with partners, to complement ongoing efforts such as the Pier2Peer scientific mentoring programme.

The IOC working group on deoxygenation organizes monthly webinars featuring each time a junior and a senior scientist, with an average of 100 participants. Deoxygenation was the focus of one IOC summer school in September 2019, with a new edition organized in November 2023 as part of the Decade Programmes GOOD/OARS with 33 young researchers from 17 countries and more than 15 world experts in their respective fields. The next summer school is planned for Southeast Asia in 2025/2026.

For Blue Carbon, trainings are and will continue to be conducted under the framework of the GO-BC Decade programme, alongside the development of scientific training material, including an online course on the OTGA platform. Through the International Partnership for Blue Carbon (the IPBC), regular knowledge exchange sessions on Blue Carbon science and implementation are conducted.

He finally made reference to the UNESCO Category 2 Centre GRO in Iceland of which one component is the 'Science for Sustainable Fisheries Programme' (FTP) which is affiliated to the IOC. Despite attempts, the synergies with OTGA and regional IOC subcommissions have not been achieved as anticipated at the start 5 years ago, but this will be addressed in an ongoing external review of the Centre and will deserve being revisited.

3.2.2 Marine Policy and Regional Coordination (including 6.2 on Sustainable Ocean Planning and Management)

This agenda item was introduced by Ms Michele Quesada Sa Silva, MSP Global Coordinator. Her presentation is available from <https://oceanexpert.org/document/35128>.

Ms Quesada emphasized that the main focus of the MPR work related to the IOC Capacity Development Strategy is focusing on the provision of technical assistance and capacity development support to national stakeholders and regional entities engaged in MSP in accordance with the Joint Roadmap that IOC and the European Commission adopted in 2022.

These actions focus on:

- Assessing global capacity needs on MSP
- Delivering training related to MSP concept and thematic guidance/tools
- National support through Rapid assessment methodology to map priority actions and identify needed CD investments in MSP
- Facilitating a community of practitioners at regional and global level through MSP Fora
- Development of resources to communicate and build societal awareness on MSP

Furthermore, through the GEF IWLearn project, IOC is delivering technical and training support to GEF projects on focusing on the application of MSP in the context of the Large Marine Ecosystems approach.

Finally, the IOC Assembly at its 31st session highlighted the importance for IOC to develop a comprehensive framework to deliver knowledge and capacities to meet the needs of IOC Member States for sustainable ocean planning and management, in accordance with its Statutes, and launched the process of developing an IOC Wide-Strategy on Sustainable

Ocean Planning and Management. A draft Strategy ([IOC/EC-57/4.3.Doc\(1\).Rev.](#)) was presented at EC-57 and will be finalized by the IOC Working Group on Sustainable Ocean Planning and Management (IOC/WG-SOPM) during the intersessional period and presented to the 33rd IOC Assembly together with an implementation plan.

One of the four strategic objectives of the Draft Strategy focuses on **Expanded capacity development for SOPM** and specifically:

- i) Enhance stakeholder capabilities through comprehensive training programmes, workshops, information materials and ongoing education, tailored to meet the needs of diverse users and widely distributed through platforms such as Ocean CD-Hub;
- ii) Establish knowledge exchange platforms to effectively disseminate best practices and innovations, promoting a global community of practice that enables continuous improvement and adaptation of ocean management strategies.
- iii) Additionally, engage with Early Career Ocean Professionals (ECOP) to foster hands-on learning and leadership in ocean governance and science. The IOC Expert Group is therefore invited to identify existing IOC CD services and delivery mechanism, as well as potential new initiatives, that could be developed to support the implementation of the SOPM strategy.

3.2.3 Global Ocean Observing System (GOOS)

This agenda item was introduced by Ms Joanna Post, Head of GOOS Section. Her presentation is available from <https://oceanexpert.org/document/35122>.

Dr Joanna Post shared that the Global Ocean Observing System has a 2030 Strategy with its vision '*A truly global ocean observing system that delivers the essential information needed for our sustainable development, safety, wellbeing and prosperity*'. The Strategic Objective 9 specifically pertains to '*Develop capacity to ensure a broader range of beneficial stakeholder participation*'.

Some progress made in GOOS included the development of partnership with IODE/OTGA courses, enabling a community of practice capacity development in GOOS, and investigating mechanisms to support CD activities within regions through GRAs e.g. instrument donation, sharing of training materials, etc. She also shared the results of the DBCP Capacity Building and Needs survey questionnaire to identify the priority areas for capacity development. The main outcomes include 'Continuously leverage resources to organize needs-oriented training,' 'Cooperate with WIS 2.0 and Cross-Network Data Implementation Strategy to improve the data exchange ,accessibility and usability,' and 'Establish alumni database/email newsletters to encourage the engagement and cooperation.'

The main recommendations from GOOS progress report included the development of direct partnerships with IODE and the OTGA to develop a series of courses, if regarded as a priority, more broadly to develop EOVS capacity across the whole of the observing system, not just specifically for the BioEco EOVS. Another one was enhancing IOC's capacity development needs assessment process through various approaches to ensure a wider representation of communities provide feedback which can be used to target capacity development activities through GOOS and IOC/WMO. Finally, enabling a community of practice for capacity development within GOOS, IOC/WMO that will allow those involved with CD to better integrate activities and add value wherever possible, foster integration and collaboration through networks and WMO/IOC ensuring maximum impacts of capacity development activities, e.g. co-hosting webinar series, regional to national workshops etc.

Ms Post concluded with some of the key actions discussed during the WMO/IOC joint collaborative board on developing cooperation framework, membership and coordination, small joint advisory group and sharing global calendar.

3.2.4 Tsunami Resilience Section

This agenda item was introduced by Dr Laura Kong, Director of the International Tsunami Information Center (ITIC, UNESCO-IOC / NOAA). Her presentation is available from <https://oceanexpert.org/document/35123>.

Dr Kong presented the relevant actions taken by the Tsunami Resilience Section under each of the outputs, activities and actions under the IOC CD Strategy.

Output	Activity	Action	Relevant Programmes/Actions Taken	
1. Human resources developed at individual and institutional levels	1.1 Academic and higher education	1.1.1 Promote and assist with the strengthening and establishment of consortia of higher education and research institutions at the appropriate geographical scale		
		1.1.2 Promote collaboration between UNESCO Chairs and IOC, and between IOC and other organisations dealing with ocean matters on human resources development	Plans to work with CTBTO 2025 ->	
	1.2 Continuous professional development	1.2.1 Promote and assist with the organisation of training courses, workshops and "summer schools", relevant to the IOC mandate, including training of trainers/technicians and executive career development for institutional managers/decision makers, in collaboration with other organisations		UNESCO-IOC Training: OTGA UNESCO-IOC Tsunami Awareness (Jul 2024) OTGA UNESCO-IOC Tsunami Ready (Nov 2024) OTGA UNESCO-IOC Tsunami Warning Center Minimum Staff Competencies (Pacific, 2026) Regional Tsunami Ready Training (Indian Ocean, Pacific, Jan 2023, Feb 2025, NEAMTWS Jan 2025) Regional Tsunami Evacuation Maps, Plans, and Procedures (Pacific, 2019; IO Feb 2025) ITIC Training Programme on Tsunami Early Warning Systems (Hawaii 2023, Chile 2024) – altogether 30 countries, 49 participants Pacific, Caribbean, IO Tsunami Response Workshop for Businesses: preparing hotels and businesses for the next tsunami (course manual 2013, updated 2024)
			1.2.2 Establish, or collaborate with other organisations to develop internship/fellowship and on-board training programmes	IOC Ocean Training Internship – 2 persons (Indonesia, Tonga) to ITIC Oct-Dec 2024
			1.2.3 Establish and collaborate with other organisations on visiting lecturer/scholar/researcher programmes and professional exchanges (peer to peer)	Hands-on professional internships to South China Sea Tsunami Advisory Centre (SCSTAC) – small cohorts of 4-5 national officers from NTWC-SCS region to shadow duty watchstanders (regular since 2018)
			1.2.4 Promote and assist with the establishment of regional training (and research) centres relevant to the IOC mandate	OTGA Specialized Training Center for Tsunamis (STC) -ITIC
			1.2.5 Promote the development and sharing of training materials and tools	IOC Manual and Guides / Technical Series guidelines and handbooks, Tsunami Warning Decision Support Tools available to organizations responsible for tsunamis (inundation modelling tools (ComMIT, TUNAMI, HySea, Comcot, NEOWAVE, etc), tsunami travel time calculation (TTT), earthquake and sea level monitoring (CISN, IOC SLMF, Tide Tool), Tsunami Coastal Assessment Tool (TsuCAT)
	1.3 Sharing of knowledge and expertise including through community building	1.3.1 Establish a travel grant "fund"		
		1.3.2 Establish or collaborate with other organisations on a mentoring programme		
		1.3.3 Promote and assist with the development and strengthening of IOC alumni networks, and professional networks including for youth leaders		
	1.3.4 Promote funding, grant and scholarship programs to facilitate ocean research, technical development and scientific exchange through bringing visibility of opportunities via an online CD hub	Joined IOC Ocean Training Internship		

Output	Activity	Action	Relevant Programmes/Actions Taken
1. Human resources developed at individual and institutional levels	1.4 Integration of ocean science in basic education	1.4.1 Promote the integration of ocean science in curricula of primary and secondary schools	Indonesia and PICT schools (IOTIC and IOC TSR Fiji + UNDP)
		1.4.2 Promote careers in ocean research and ocean management	Pre-K to High School Earthquake and Tsunami Textbooks, with teacher's guides
	1.5 Improving gender, generational and geographic diversity	1.5.1 Promote participation of women in ocean research 1.5.2 Promote and support "young scientist" and "women in science" awards	
2. Access to technology, physical infrastructure, data and information established or improved	2.1 Facilitating access to technology and infrastructure	2.1.1 Establish and maintain a register of infrastructure to facilitate access, and promote transfer of marine technology	
		2.1.2 Promote the development of regional collaboration on sustainable scientific infrastructure	IOC TSR with Caribbean (CEDEMA), Central America (CEPRENAC), South America (CPPS), Pacific Islands (SPC, SPREP, UNDP), SE Asia (ASEAN), IO (UNESCAP, UNDP) – collaboration on training and workshops
		2.1.3 Promote involvement of citizen science in ocean research	
	2.2 Facilitating equitable access to and sharing of ocean data and information	2.2.1 Promote the development and wide use of regional and global data and information systems	IOC Sea Level Monitoring Facility for tsunami warning
2.2.2 Promote the sharing of ocean data and information by stakeholders		Extensively and in the framework of the Global tsunami Warning and mitigation programme, specially in relation to Tsunami Service Providers (TSP)	
3. Global, regional and sub-regional mechanisms strengthened	3.1 Further strengthening and supporting secretariats of regional sub-commissions	3.1.1 Improve staffing of secretariat of regional sub-commissions	
		3.1.2 Reinforce budgeting of regional sub-commissions	
	3.2 Enhancing effective communication between regional sub-commission secretariats and global programmes as well as other communities of practice (incl. other organisations)	3.2.1 Establish an effective coordination and communication mechanism between the secretariats of the regional sub-commissions and the global programmes	Regional Tsunami Information Centers (ITIC, CTIC, IOTIC, NEAMTIC) serve as liaison working directly and supporting country needs, including capacity building. UNOD Tsunami Programme 100% at-risk tsunami communities prepared and resilient facilitated by TICs

Output	Activity	Action	Relevant Programmes/Actions Taken
3. Global, regional and sub-regional mechanisms strengthened	3.3 Identifying specific national and regional capacity development needs through regular needs assessment	3.3.1 Organise and conduct biennial capacity development needs survey	IO: 2005, 2018, 2024 Tsunami Preparedness Capacity Assessment PTWS: 2025 Tsunami Preparedness Capacity Assessment
	3.4 Encouraging regional and sub-regional organisations to be leaders in, and amplifiers of capacity development	3.4.1 Reinforce engagement of regional and sub-regional organisations in consultation process and capacity development initiatives	See 2.1.2 Promote the development of regional collaboration on sustainable scientific infrastructure
4. Development of ocean research policies in support of sustainable development objectives promoted	4.1 Fostering the development of ocean research policies	4.1.1 Compile and compare information on existing ocean research policies, and disseminate to Member States for their use	
		4.1.2 Assist and enable Member States with the development of ocean research policies, making use of the results of 4.1.1	
5. Visibility, awareness and understanding on the roles and values of the ocean and ocean research in relation to human wellbeing and sustainable development increased	5.1 Fostering the development of ocean related public information and communication services 5.2 Fostering the development of ocean literacy	5.1.1 Encourage the development of public information (communication) departments in ocean research institutions	
		5.2.1 Assist with the strengthening and development of ocean literacy programmes at national and regional levels	UNESCO UNITWIN (IOTIC)
6. Sustained resource mobilization reinforced	6.1 Enhancing sustained support (in-kind and financial) to the IOC for its international coordination role 6.2 Promoting sustained bilateral and multilateral support among Member States	6.1.1 Foster partnerships to increase in-kind support opportunities	IOC MOUs with BOM (Australia), BMKG (Indonesia), CTBTO, Government of Barbados (CZMU, DEM) and NOAA (United States)
		6.2.1 Encourage resource mobilisation in particular from Member States, and other donors to support the outcomes of the IOC Capacity Development needs assessment	European Union (DG ECHO), JICA, MOFA (Japan), UNESCAP, World Bank for IOTWMS and PTWS Capacity Assessment.

3.2.5 Ocean Decade

This agenda item was introduced by Ms Alison Clausen, Programme Specialist. Her presentation is available from <https://oceanexpert.org/document/35164>.

The work of capacity development as part of the Ocean Decade has been designed to align with and complement IOC's programmatic work and the IOC Capacity Development Strategy. The strategic framework for CD as part of the Ocean Decade was developed on the basis of the former IOC CD Strategy and is harmonious with the principles and objectives of the current Strategy. Capacity development initiatives through the Ocean Decade are coordinated through the Ocean Decade Capacity Development Facility which focuses on identifying and fulfilling the needs of Decade partners for CD, with a focus on SIDS, LDCs and ECOPs. The Facility works with partners to connect existing initiatives and develop new initiatives specific to the needs of the Decade. Initial work through the Facility has focused on the development of new training initiatives for co-design and Indigenous and local knowledge and new contributions for the Facility are being solicited through regular Calls for Decade Actions.

3.2.6 Ocean Teacher Global Academy (OTGA/IODE)

This agenda item was introduced by Ms. Ana Carolina Mazzuco, Ocean Global Teacher Academy (OTGA) Manager. Her presentation is available from <https://oceanexpert.org/document/35127>.

She highlighted that UNESCO-IOC OceanTeacher Global Academy (OTGA) is an ocean training platform, supported by a global network of 17 Regional and Specialized Training Centres (RTC/STCs) and international affiliated partner institutions or programs. It benefits about 14,000 users (experts, facilitators, and learners), offering a range of learning services, and helping the global community with planning, development, and delivery of training in various formats (online, face-to-face, and blended). OTGA currently supports with coordination and management of training courses and alumni; a shared e-learning platform; creation of learning resources and activities (in ocean science, services, and management); mechanisms for connecting with experts, facilitators, and training centres; guidance on learning services procedures and standards; and training staff exchange and internships. Over the years, OTGA has been an essential element for professional training and career development in the broad ocean science community, facilitating knowledge sharing and expertise building beyond excellence centres. OTGA is a Programme Component of the UNESCO-IOC International Oceanographic Data and Information Exchange Programme (IODE) and a key action in the

implementation of UNESCO-IOC CD Strategy. IODE, as the host for OTGA, is an ISO 29993:2017 certified Learning Service Provider.

She reported that in 2024, OTGA has already successfully delivered 50 included online (self-paced and instructor-led), blended, and face-to-face modes, supporting the training needs and priorities of IOC global Programmes, Regions, and Member States, and benefitting the broad ocean science community. Until this date (October 6, 2024), 2802 participants enrolled in these courses, and this number should increase as 11 courses more are planned until December 2024. Figures for the courses were included in the presentation, showing the increase in performance, collaboration, and global coverage.

Ms. Mazzuco addressed OTGA has liaised with IOC Programme and section leads to jointly develop and deliver training including courses with IODE (OBIS and ODIS), HAB, Tsunami Programme, Ocean Literacy, Ocean Decade, Marine Spatial Planning, and Ocean Acidification. OTGA secretariat also worked closely with IOC CD secretariat and RSB officers to provide information for the needs and priorities assessment and match-making exercise in support of the regions. OTGA and IOCAFRICA (and other partners) co-developed one blended training held in Kenya. IOCAFRICA also co-sponsored travel grants for ECOPs to attend training in Malta. Plans for a joint course in eDNA with IOCAFRICA and OBIS are under discussion for the next years.

In the context of the Ocean Decade, Ms. Mazzuco highlighted the collaborative action with: the DCU to sponsor the development of course in Indigenous and Local Knowledge; the CDF to develop training in Co-design; the DCC for Coastal Resilience to develop a course focused on business sustainability; and the ECOPs network courses focused on the young community. Likewise, many other OTGA courses target challenges of the Decade, and in 2024, OTGA secretariat built a Competency Framework to monitor this connection through the e-Learning Platform.

In preparation for ISO audits, OTGA secretariat reviewed the learning management system, updating guidelines, standards, and procedures. It includes the development and trial of a performance evaluation framework.

Ms. Mazzuco also reported that OTGA Steering Group met in Oostende from 11-13 June to: review the current status of OTGA; review the training courses delivered by the Regional and Specialized Training Centres for the last intersessional period; discuss the operations of the OTGA; discuss the Project work plan for 2024-25, including proposed courses; and discuss the future of OTGA. The agenda and outcomes of this meeting can be found in its [report](#). During the meeting, RTCs/STCs revised and approved a new vision for OTGA, which included as core the ongoing successful training activities and Learning Management System but adding as well blue skills, creative experiences, and shared solutions for training.

She addressed that in the past 10 years, OTGA has mainly relied on extra-budgetary funds from the voluntary contributions to UNESCO IOC from the Government of Flanders (FUST-2). OTGA Secretariat budgeted the operation and further development of the training programme and associated network for the next 5 years, following the approved 2026-2030 vision, reaching to an estimate of USD 5.000.000,00. For 2025 to 2027, OTGA has initially requested yearly USD 109.000,00 from the Regular Programme, to secure core services (management of training courses, e-learning platform, travel grants, and development of new learning materials). Programme component coordination and IT are guaranteed until 2026 from Flanders/VLIZ staff secondment. However, OTGA secretariat staff ideally should be composed of a coordinator, an operation officer, an e-learning expert, and user support assistants (administration and stakeholder engagement). Throughout the year, OTGA has participated in

calls for project proposals, engaged with collaborators, and met with potential donors for resource mobilization. No core extra-budgetary funding has been secured to cover the full programme, but funding has already been confirmed for some specific training activities.

3.2.7 Ocean Biodiversity Information System (OBIS/IODE)

This agenda item was introduced by Ms. Elizabeth Lawrence, OBIS Capacity Development Officer. Her presentation is available from <https://oceanexpert.org/document/35125>.

She reported on OBIS (Ocean Biodiversity Information System) Capacity Development (CD) activities, which align with several IOC CD objectives, including:

- **Continuous Professional Development (1.2):**
 - OBIS continuously maintains and updates the OBIS Manual (<https://manual.obis.org/>) as biodiversity data standards evolve. The Manual received a considerably major update in 2023 by the OBIS CD Officer, supported by funding from NORAD and LifeWatch ERIC.
 - OBIS released 26 YouTube video tutorials on data formatting and controlled vocabulary. These resources, along with the OBIS/OTGA online course (<https://oceanexpert.org/event/3983>), also supported by NORAD and LifeWatch ERIC, promote the development of marine biodiversity data management skills. With over 250 participants from 63 countries and 47 individuals currently certified, OBIS contributes to the global professional development of marine biodiversity experts.
 - Through the 2024 IOC Ocean Training Internships (<https://obis.org/2024/06/13/internships-2024/>), OBIS-Australia and OBIS deep-sea will host an intern to support their OBIS related data management activities which will allow interns to further develop the acquired biodiversity data skills within their home institutions.
- **Integration of Ocean Science in Basic Education (1.4):**
 - As part of the Horizon Europe project MPA Europe (<https://mpa-europe.eu/>), OBIS developed a marine biology curriculum for elementary school students in Ostend. This initiative integrated ocean science into basic education, helping foster early interest in marine biology and environmental stewardship among young generations.
- **Facilitating access to technology and infrastructure (2.1)**
 - The OBIS CD Officer is leading a work package focusing on capacity development in the Horizon Europe project BioEcoOcean (<https://bioecoocean.org/>). The project will develop a question-based Blueprint for Integrated Ocean Sciences, with the aim to guide ocean observing programs through each step of the ocean observation value chain. OBIS will develop CD resources to support the uptake of the Blueprint, which will have specific modules targeting each step in the BioEco ocean observing value chain: from early planning stages, data collection and management, data synthesis, to product development, and application in policy and decision making. Work from this project also touches on other IOC CD activities (e.g. 2.2, 3.2, 4.1).
- **Facilitating Equitable Access to Ocean Data (2.2):**
 - OBIS is committed to enhancing accessibility and data sharing. This is reflected in the creation of Spanish-language resources, including translations of YouTube tutorials and a Spanish version of the OBIS/OTGA online course, released October 2024 (<https://oceanexpert.org/event/4571>). These efforts,

- spearheaded by OBIS Colombia, OBIS Caribbean, and ESP OBIS nodes, promote inclusivity and ensure broader access to training materials.
- The OBIS Secretariat co-organized the marine biodiversity data mobilization workshop along with OBIS-USA, IOOS, Hakai, CIOOS, MBON, OTN, Caribbean-OBIS, and OBIS-Chile (https://ioos.github.io/bio_mobilization_workshop/). The third annual workshop attracted over 400 applicants and included dedicated sessions for Spanish speaking participants, which further supports equitable data sharing practices.
 - **Enhancing Communication between Global and Regional Programmes (3.2):**
 - The SG-OBIS-12 (<https://oceanexpert.org/event/3965>) agreed upon a new structure and established three coordination groups (Nodes, Data, and Products) with the goal to enhance communication between the global OBIS Secretariat and the regional and thematic nodes. The OBIS Nodes Coordination group will focus on enhancing communication within the OBIS community, whereas the Data and Products Coordination Groups will also liaise with other communities, e.g. IODE, GOOS, Ocean Science, GBIF, GEO BON, TDWG, etc.
 - **Encouraging Regional Leadership in Capacity Development (3.4):**
 - Regional and sub-regional nodes have been empowered to lead capacity-building efforts, as seen in the collaborative development of the Spanish OBIS/OTGA course and training initiatives across Latin America as well as the OTGA biodiversity data management training course for Europe, organized by EurOBIS/EMODNet.
 - The newly established OBIS Nodes Coordination group is also working to strengthen and encourage regional data management capacity development in the OBIS community.

3.2.8 Ocean Data Information System (ODIS/IODE)

This agenda item was introduced by Ms Lucy Scott, ODIS Programme Manager. Her presentation is available from <https://oceanexpert.org/document/35126>.

She recalled that the First Session of the IOC Group of Experts on Capacity Development was held in Paris between 21-23 March 2018. **Task Team on the implementation of a TMT/CHM "portal" and related activities** was convened and held its first meeting in March 2019. The meeting discussed the results of a survey (on CD needs assessment and on the clearing house mechanism - see also [IOC Circular Letter 2738](#)) which had been launched on 5 October 2018 until 14 February 2019. It focused on the three regional sub-commissions (IOCAFRICA, IOCARIBE, WESTPAC) and regional committee IOCIDIO, including SIDS.

All regions reported that such a mechanism would be instrumental to the further development of ocean science capacity in the countries. All regions expressed preference for an online central portal integrating the data and information harvested from regional/sectoral CHM portals. The respondents identified the need for a series of nodes rather than one global central node but using technology that allows interoperability between the nodes. The majority of respondents had recommended a “A hybrid model: online central portal with deep-links to regional/sectoral CHM portals”.

From these and several other preparatory activities, the OIH Project was designed and approved and was implemented, starting in April 2020, funded by the Government of Flanders (Kingdom of Belgium). The OIH Project closed in June 2024 but the ODIS Programme Component of IODE continues to support core services seamlessly with IODE RP funding.

ODIS will continue to grow and develop and resources will be actively sought for other regions and further development of ODIS.

The Ocean Data & Information System (ODIS) is a federation of independent systems that uses common conventions to share and exchange their (meta)data over the Web.

ODIS is a global initiative supported by the IOC/UNESCO to:

- Improve access to marine and coastal data and information
- Provide an openly accessible online platform to network stakeholders and facilitate the exchange of Ocean data and knowledge

ODIS objectives include to:

- Harness the proliferation and diversity of Ocean data, online data systems and other digital resources;
- Connect global and local digital systems and infrastructures using Web architecture;
- Support IOC member states and institutions;
- Raise awareness of global data and information resources among local users;
- Overcome challenges of trust through socio-technical innovation in some regions and communities.

Three pilot regions and the partner network

Although ODIS first worked with global IOC partners and our three pilot regions, it gradually expanded over time so that now it is engaging with over 120 organisations at some level, to enable them to expose their metadata and to join the growing network, and continue the ongoing process of co-design. ODIS is now a global infrastructure that can help any organisation or individual to share their ocean (meta) data with the Web, as well as to access a growing ecosystem of Ocean data.

ODIS currently links 50 data sources from 42 partner organisations

The ODIS-architecture

ODIS links partners, or nodes through a lightweight, schema.org based, decentralized interoperability architecture. As with natural ecosystems, ODIS will be resilient to the gain or loss of parts, and accommodate a high diversity of products and services, while maintaining its core functions.

- Partners do not change internal workflows or existing (meta)data systems: A common Web interface through JSON-LD/schema.org and LOD paradigms is the key to common FAIR implementation
- Specifications are lightweight, easy to implement, and resilient to gain/loss of parts.
- Partners aligned to ODIS are also discoverable by Google Dataset search and others.
- Partners retain their own data and complete control over what they share through their node or nodes. Essential for CARE compliance and interfaces with sensitive data in corporate or other realms.
- All documentation is online, free and open <https://book.oceaninfohub.org/index.html>

The project's open-source philosophy of open and transparent documentation promotes reuse and adaptation by any institution, whether or not they are an OIH project partner. This will build resilience and sustainability of ODIS as it becomes adopted and implemented by more partners beyond the life of the OIH Project.

A **Global Search portal** has been developed as a demonstration of ODIS (<https://oceaninfohub.org>). The portal currently (December 2023) contains over 130,000 content items in seven content categories: (i) Experts (27,000); (ii) Institutions (13,000); (iii) Documents (42,000); (iv) Training (1,500); (v) Vessels (113); (vi) Projects (3,600); and (vii) Datasets (48,000).

Capacity development activities (OIH & ODIS)

Underpinning all these activities, are capacity development activities, contributing also to the IOC's CD strategy.

- ODIS is needs driven, with investment in tools that have been requested by regions
- It will optimise the exchange of knowledge, information and learning
- ODIS takes into account cultural and geographic diversity (respects ownership of data, CARE principles, regional identity of hubs)
- ODIS builds on and strengthens existing resources
- ODIS facilitates equitable access to Ocean metadata.
- The low barriers to joining enable the inclusion of very simple, to highly complex systems.

The ODIS partnership with OTGA is very important. We do undertake bilateral and in-person learning and training, but we need OTGA's online learning platform to complement this.

The IOC/OTGA/OIH Training course: **Implementing the Ocean Data and Information System (ODIS) architecture** was held in 2021 in English and then in 2023 in four languages. It was held online over a week-long period, and then made available as a self-paced course. [9 courses in total]

2021: 59 in English

2023/4: 104 across English, Spanish, Portuguese, French

ODIS worked closely with the **International Coastal Atlas Network (ICAN)**, to support GeoNode training in association with the activities supporting the African Coastal and Marine Atlas (2021).

The IOC/OTGA/IOCAFRICA/RTC Kenya/ICAN/Seabed2030/CODATA course Training on the **Implementation of FAIR Principles to African Marine and Coastal Data** was recently held in Mombasa (September 2024).

ODIS does bilateral co-design as we have a consultant on board who holds 1:1 meetings with partners to walk them through the joining process. This also has a two way feedback as they use the interactions to improve the documentation and the ODIS Getting Started manual.

- OIH/ODIS has supported the three pilot regions in the specific ways they wanted to link to ODIS.
- INVEMAR has a regional node, which links ODIS to datasets from 12 countries in the LAC region as well as regional partners that include CLME+ Training and Capacity Development Portal, The Sargassum Information Hub and the Caribbean Marine Atlas.
- Africa has developed three thematic portals that link to ODIS,
- The Pacific has linked its two existing regional portals to ODIS.

The Ocean InfoHub Project and ODIS have succeeded in creating a self-sustaining network of partners, but there remains much work to do to widen the collaboration to other regions and

nations, build capacity and digital equity in regions with low resourcing, and continually upgrade the capabilities of the network.

ODIS offers a long-term solution for any organisation, including NODCs and ADUs and new partners to keep ownership and complete control over their data holdings, while choosing which (meta)data to share with a growing global ocean digital ecosystem

Getting started with ODIS: <https://book.odis.org/gettingStarted.html>

There was a discussion on the evolution of capacity development needs and the constant training demands that requires more complex than simple training courses such as through mentoring to guide young researchers. It was noted that regional trainers can help make training more available in regions. Training a critical mass and providing infra support are some of the top CD priorities that need to be addressed.

It was noted that IAEA has funding for training and equipment and trainees have to be nominated by national focal points.

It was suggested to look at how IOCINDIO can be accommodated in HAB as it is already accommodated in WESTPAC, IOCARIBE and IOCAFRICA. Regarding HAB research in Africa, this request from IOCAFRICA Member States was recognized and trainings on eDNA are currently being planned.

There was a suggestion to partner with POGO and make a network of networks in IOCARIBE. Ms Joanna Post clarified that POGO is already an existing partner with GOOS.

Referring to the lack of an RTC for French speaking countries in Africa, it was clarified that Senegal did not apply to the call for hosts of RTCs. While there are no plans for new calls soon, there are several affiliated partners that can be considered.

There was a discussion on potential collaborations between ODIS and UNEP and its World Environment Situation Room. Mr Ibukun Adewumi, Head, UNESCO/IOC Sub Commission for Africa & the Adjacent Island States (IOCAFRICA) Secretariat expressed the request to be involved in the discussions with UNEP.

Ms Elizabeth Lawrence clarified that OBIS does host data - biodiversity data, abundance, biomass, various sampling and measurement data, etc. and also working together to connect OBIS with ODIS so that data published to OBIS will be findable through ODIS.

The Group recognized the capacity development activities of the global and regional programmes in support of the implementation of the IOC Capacity Development Strategy 2023-2030 and called for synergies and alignment.

3.3 IOC CD ACTIVITIES AND NEEDS (REGIONAL PROGRAMMES)

3.3.1 IOCAFRICA

This agenda item was introduced by Mr Adewumi Ibukun, Head, UNESCO/IOC Sub Commission for Africa & the Adjacent Island States (IOCAFRICA) Secretariat. His presentation is available from <https://oceanexpert.org/document/35132>.

Mr Ibukun Adewumi presented IOCAFRICA's inputs on the CD mapping matrix highlighting the actions taken (highlighted in green) and the lacking actions on further needs (highlighted

in red text). In the interest of time, he discussed the outstanding CD needs that require support from IOC global programmes.

Under output 1, he shared that IOCAFRICA is eagerly looking forward to collaborating with institutions and organizations both within and outside the continent for a program focused on facilitating professional exchanges of personnel at institutional levels. This initiative aims to bolster institutional capacity at both national and regional levels.

Targeted assistance is also needed on the areas of technical support and the opportunity to engage with international specialists in ocean science, climate resilience, and heritage conservation to meet our regional capacity development requirements. IOCAFRICA also requested for assistance in recognising and obtaining funding opportunities, along with coordinating in-kind contributions. Improving knowledge exchange and networking through global platforms and sharing best practices will be essential. Potential areas of collaboration may involve forming partnerships with academic institutions outside the continent, international organisations, and private sector companies in marine technology. This comprehensive support is expected to greatly enhance our capacity development efforts, establishing a resilient network of ocean science professionals and institutions capable of addressing climate change and other environmental challenges in the region.

IOCAFRICA also looks at expanding regional capacity development efforts by seeking support from IOC global programmes to establish a mentoring programme in collaboration with other organizations, especially focusing on niche areas of the blue economy such as biotechnology and blue entrepreneurship. This initiative aims to pair experienced professionals with early-career ocean scientists and practitioners in the region, providing them with guidance, knowledge transfer, and career development opportunities. By harnessing the expertise and networks of partner organizations, it aims to create a robust mentoring framework that nurtures skill development, innovation, and leadership in ocean science. This forward-looking initiative will play a crucial role in building a resilient and capable workforce, equipping them to address the challenges presented by climate change and other environmental threats.

To further improve efforts in regional capacity development, support from IOC global programmes is sought to promote and assist with the development and strengthening of IOC alumni and professional networks, including those for youth leaders. Establishing these networks as part of IOCAFRICA's programmes and building on successful support of early-career ocean scientists would enhance their skills in ocean science. Through nurturing these networks, the goal is to showcase the significant contributions of IOCAFRICA to ocean science and research in Africa, emphasizing its role in cultivating a skilled and resilient workforce capable of addressing the region's environmental challenges.

Under Output 2, support in the organisation of a review meeting for consolidation and finalisation of the report on the state of the tide gauge network in the region and operationalise the African Coastal and Marine Atlases (ACMA), incorporating the mapping of corals, mangroves, natural resources, marine protected areas, waste dumping, dredging and other vital ecosystems and processes along Africa's coastline was highlighted. Regional research hubs within universities and initiating joint research projects to promote regional collaboration on the development of low-cost technologies (e.g., Observation sensors) should also be established. Lastly, IOCAFRICA aims to develop citizen science programs, launch educational campaigns, and create mobile applications to engage local communities in the ocean Early Warning System.

3.3.2 IOCARIBE

This agenda item was introduced by Ms Elva Escobar, IOCARIBE CD Coordinator. Her presentation is available from <https://oceanexpert.org/document/35134>.

Ms Escobar explained that Capacity Development and Ocean Literacy in the Tropical Americas and Caribbean region are crosscutting and need to be at the forefront of each of the Ocean Decade science challenges because the ocean is essential to the wellbeing of society and its economy in the region, while species loss and impacts on the water quality are evident due to the increasing use of marine ecosystems and their resources. Different UN global, regional documents and surveys have recorded existing regional differences, and in the region among Member States in terms of ocean science capacities, one example is the human and financial capacity to study and manage their deep ocean environment.

In the region capacity development efforts have been a priority since the late 1960s IOC UNESCO capacity development programs helped forming strategic research groups, graduate programs that were the building blocks for the creation of institutions in some member States of the region. This took place through visiting experts' programs and partnering with ongoing initiatives in the region that strengthened ocean sciences for decades, however the opportunities have been limited in job creation.

The IOCARIBE Ocean Decade CD WG met several times, had workshops that recognized that long-term capacity development is required for solving major challenges posed by the impacts on the ocean. Developing local ocean sciences expertise and creating technical groups together with political will, can have long lasting benefits for a transformative change in ocean sciences in Member States of the region that coordinated with sustainable ocean economy can increase the creation of new ocean-oriented jobs required in the region.

The priority challenges identified for capacity building in the region within the framework of the IOC Capacity Development Strategy 2023-2030 include the following: funding and investment in ocean science and infrastructure, access to equipment, to research vessels and trained researchers. Additionally, a blue educational curriculum, an efficient interaction with local and indigenous communities and to foster job opportunities to avoid the brain drain are parallel tasks. Grand challenges, more complex in nature, recognized the need of building multigenerational expertise and skills, and creating ability to maintain to help achieve the outputs of the UN Ocean Decade.

Related actions undertaken in support of the implementation of the IOC CD Strategy seek to reduce the regional uneven distribution of technological and developmental capacities while tackling pollution, biodiversity loss and climate change. In the region projects that facilitate the transfer of marine technology and strengthen institutional and scientific networks in ocean sciences is needed. Actions that promote knowledge generation and sharing through an ocean literacy task group (with the Blue Schools, OTGA, the Ocean Literacy and Caribbean Indigenous Communities and the Ocean Literacy Caribbean - The Ocean and Me and seven endorsed projects) have been foreseen. A continuous capacity development program attending priority regional needs (Sargassum and harmful algal blooms, Coastal Hazard Early Warning Systems, Marine Spatial Planning) that involve scientific cooperation to strengthen science, policy and planning for sustainable oceans.

Actions that are lacking include making a transformative change that Member States can contribute to the State of the Ocean Reports in the future by reducing the persistent disparities and gaps in ocean knowledges. To achieve this in the next decades nurturing capacity building

and access to oceanographic infrastructure is needed for by scientists, early career professionals and minorities.

Specific support from the IOC global ocean programs is required in the region. These should seek to develop skills, contribute to better metrics to improve the forecasting capacities to adapt to climate change, biodiversity loss, create carbon markets, or build sustainable ocean economies. However, support to implement early warning system that prevent human losses in the coastal ocean; to measure, manage and plan multiple activities at sea; and to improve education at all levels and for all ocean stakeholders is needed considering ample participation.

Collaboration and partnership with the international communities, governments, industry, research institutions can speed capacity development. These can unlock opportunities within ocean observing networks for updating abilities, developing equipment and technical groups. At sea cooperation in capacity building at sea can inspire and promote the access to data from EEZs and in ABNJ. Philanthropic financing may help support ongoing local educational programs allowing Member State research vessels to keep being operative and count with means to defray ship time for research , education and capacity building, or modernize basic equipment.

3.3.3 WESTPAC

There was no representative from the IOC/WESTPAC Secretariat.

3.3.4 IOCINDIO

There was no representative from the IOCINDIO Secretariat (managed on *ad hoc* basis by Mr Julian Barbière).

3.4 NEW IOC CD ACTIVITIES

3.4.1 Internships

This agenda item was introduced by Ms. Johanna Diwa. She explained that the IOC OceanTraining Internships aim to promote national and international exchange of professionals to acquire expertise related to the IOC mandate (research, services, and capacity development). Through a learning-by-doing approach, the participants have the opportunity to learn from experts in the field on a daily basis and contribute to the development of new resources fit for the global or regional community. The internships are complementary to the ongoing capacity development activities conducted by the IOC, directly linked to its global programmes. These IOC programme offices (or associated network of regional specialized centres) will host, mentor, and supervise professionals for a short training period and specific product or service delivery, to be incorporated into the current IOC infrastructure. Explicit priority is given to sponsoring the exchange of early career ocean professionals (ECOPs) from under-resourced nations (e.i., Small Development Island States and Least Developed Countries, SIDS/LDCs), indigenous communities, and other minority groups to contribute to reducing inequality in human and institutional capacity. The ultimate goal of this project is to build expertise for the Ocean, promoting collaborative opportunities for continuous professional development and lifelong learning. The internships benefit IOC Programme Offices and network specialized centres, IOC Regional Sub-Commissions, and Member States. The IOC OceanTraining Internships is a project led by IOC CD coordination office

hosted by the IODE and made possible through voluntary contributions to the IOC Special Account, including NORAD.

Activities successfully delivered in 2024

(1) Coordination, development, and systematization of the exchange organization, logistics, and operations IOC CD secretariat, IODE administrative staff, and OTGA secretariat, including:

- Co-design of the general structure, flow, and timeline of the internships.
- Organization of documentation, administrative procedures, and workflow to support management and operationalization of the internships.
- Definition and publication of the Terms of Reference and guidelines for interns, mentors, and host centres.
- Launch of the call for applications from interested host institutions and mentors.
- Approval of host institutions, mentors, and respective workplans for the internship.
- Launch of the call for applications of interns.
- Selection of interns (review of applications, scoring system, criteria, and committee).
- Institutional and office support to participants during the internship.

(2) Implementation of internships: (1 October and end of December/January)

- Six institutions were selected as host institutions: two OBIS nodes (Australia and Deep-sea nodes), two OTGA Regional Training Centres (RTC), one OTGA Specialized Training Centre and Tsunami data centre, and one NODC.
- The working plans submitted were ocean data management and tsunami resilience.
- Seven interns from seven Member States were selected as beneficiaries.
- Travel costs and up to 3 months' allowances total or partially sponsored by IOC

HOST INSTITUTION/ LOCATION	MENTOR	NAME OF INTERN	NATIONALITY OF INTERN
Servicio de Hidrografía Naval Av Montes de Oca 2124 Buenos Aires C1270ABV Argentina	Alvaro Scardilli	Joaquin Chaves Mena (M)	Uruguay
CSIRO NCMI Information and Data Centre 3 Castry Esplanade, Battery Point, Tasmania 7004, Australia	Katherine Tattersall	(Deferred to next cycle)	
INVEMAR - Marine and Coastal Research Institute in Colombia Calle 25 #2-55, Playa Salguero Rodadero postal address) * Santa Marta, Magdalena 470006, Colombia	Carolina Garcia	(Deferred to next cycle)	

Senckenberg Research Institute and Natural History Museum Department of Marine Zoology, Biodiversity Information, Frankfurt am Main, Germany 60325	Hanieh Saeedi	Benjamin Tsirlaza (M)	Madagascar
International Tsunami Information Centre Honolulu, HI USA	Laura Kong	Muhammad Harvan (M)	Indonesia
		Taniela Takeifanga (M)	Tonga
INCOIS Indian National Centre for Ocean Information Services "Ocean Valley", Pragathi Nagar (BO), Nizampet (SO), Hyderabad, Telangana 500090, India	PavanKumar Jonnakuti	Pesahala Ranmini (F)	Sri Lanka

Summary results of 2024 internships

The IOC Ocean Training Internships announced the start of the pilot phase of the programme in April 2024, inviting IOC Programmes and IOC Regional Sub-Commissions to invite potential host institutions amongst IOC offices and/or associated networks. This ensured that the interns would be trained by a host institution actively working with one of IOC's global programmes and would receive enough support and resources. Interested institutions were requested to submit complete requirements through an online application page (<https://otga.wufoo.com/forms/zna3kxa0lhkrwn/>).

The IOC Ocean Training Internships received and approved applications from 6 host institutions, including two OBIS nodes (Australia and Deep-sea nodes), two OTGA Regional Training Centres (RTC), one OTGA Specialized Training Centre and Tsunami data centre, and one NODC. The working plans submitted were ocean data management and tsunami resilience.

Seven interns were selected for the 2024 cohort. IOC provided financial support to cover the intern's costs (airfare, travel and medical insurance, accommodation, and monthly allowance), allowing the project to sponsor a maximum of 6 interns. An additional intern was supported by the Tsunami programme to be hosted at ITIC Hawaii.

2025 Cycle

The 2025 cycle will be launched in early 2025 with the proposed timeline below.

January – February 2025:	Call for host institutions
March 2025:	Host institutions selected
April – May 2025:	Call for internship applications
June – August 2025:	Placements and logistics

September – December 2025: Conduct of internships

3.4.2 Mentorships

This agenda item was introduced by Ms. Ana Carolina Mazzuco. She highlighted that mentoring, mostly developed by IODE, aims to foster international collaboration among NODCs, ADUs, and AIUs to develop the capacity of IOC Member States to share ocean data globally complying with quality assurance procedures and standards (reference: IODE Quality Management Framework). This mentoring responds to the needs identified by the Committee to increase the number of accredited NODCs, ADUs, and AIUs, and to provide guidance to national data centres being established or seeking accreditation. Such assistance can consist of: answering questions on "how to"; undertaking a visit to the (candidate) NODC to meet with staff and to provide advice; hosting staff of the new NODC so they can acquire the necessary hands-on experience in ocean data management; and participating as lecturer in relevant (OTGA) courses.

Ms. Mazzuco reports that in 2024, IODE actively engaged with NODCs and ADUs to develop mentoring activities, with results detailed below:

- Call for *IODE NODC mentoring: Helping other member states with the establishment of an NODC or ADU*, sent to NODC Ireland, UK, Portugal, Colombia, Argentina, India, and Malaysia on 15 March 2024.
Replies were received from Mr. Mark Hebden NODC UK, Mr. Uday Bhaskar T V S NODC India, Mr. Telmo Geraldés Dias NODC Portuguese, Mr. Alvaro Santiago Scardilli NODC Argentina, and Mrs. Ruby Ortiz NODC Colombia.
- NODCs hosting a staff of a new NODC:
NODC Argentina hosted and mentored the data manager of Servicio de Oceanografía, Hidrografía y Meteorología de la Armada de Uruguay, which is undergoing the process of creating a national oceanographic data center. Mentorship was carried out between September and December 2024 and included guidance and training on quality control standards, database operation, GIS functions, and data management. This action was co-sponsored by OTGA RP funds (USD 8000,00). It is important to highlight that NODC India, ADU OBIS Australia, and ADU OBIS-Deep Sea also hosted staff from data centres, but not with the aim of mentoring to starting a new NODC. This will be reported in item 4.3 IOC Ocean Training Internship.
- NODCs participating as a lecturer in OTGA training courses:

NODC	Lecturer(s)	OTGA Course
Argentina	Mr. Alvaro Scardilli Mrs. Lucía Cattana Mrs. María Eugenia Goya	Introducción a la geología y minería de fondos marinos
	Mr. Alvaro Scardilli Mrs. Soledad Tiranti	Observador de Hielo Marino y Témpanos
Belgium (VLIZ)	Mrs. Leen Vandepitte Mrs. Katrina Exter Mrs. Laurian Van Maldeghem	Ocean Data Management 2024

	Mrs. Marie Robberecht Mrs. Charlotte Dhondt Mr. Ruben Perez Perez	
	Mrs. Laura Marquez Mrs. Leen Vandepitte Mrs. Lynn Delgat Mrs. Charlotte Dhondt Mrs. Patricia Cabrera Mrs. Carolien Knockaert Mr. Ruben Perez Mr. Salvador Fernandez Mrs. Stefanie Dekeyzer Mr. Wim Decock Mr. Cyril Radermecker	Biological Data Management
China	Mrs. Wan Fangfang	Quality assurance of marine blue carbon and measurements inter-comparison
India	Mr. R. S. Mahendra Mr. Prakash C Mohanty Mr. H. Shiva Kumar Mr. V. Chandra Sekhar Mr. N. Kiran Kumar	Coastal Vulnerability Mapping and analysis using QGIS
	Mr. Alakes Samanta Mr. H. Shiva Kumar Dr. Sanjiba Baliarsingh Dr. Aneesh Lotliker	Ocean Colour Remote Sensing - Data, Processing and Analysis 2024
Ireland	Mr. Rob Thomas	Quality Management System Essentials for NODCs and ADUs 2024
Kenya	Mr. Harrison Uganda Mrs. Mary Ontomwa	Training on the Implementation of FAIR Principles to African Marine and Coastal Data
Mozambique	Mrs. Clousa Maueua	Análise de dados para gestão costeira
United Kingdom	Mrs. Lesley Rickards Mr. Mark Hebden	Quality Management System Essentials for NODCs and ADUs 2024

A discussion on the mentorship and internship processes clarified that these new IOC initiatives are in an experimental mode since this is the first time IOC implements these activities so there were lessons learned as to the practicalities of the arrangements that need to be considered in the next cycles. As for mentorships, Mr Peter Pissierssens directly discusses with the IODE community the identification of mentors.

The Group noted the need for more active regional consultation and coordination with the regions, through the RSBs, for equitable delivery of IOC capacity development to address the unique capacity development needs of the regions.

The Group welcomed the mentoring and internship initiatives and called for further development of these mechanisms in close collaboration with the IOC RSBs and other partners.

The Group called on its members to share information on existing bilateral or multilateral arrangements (e.g. between universities, research centres and institutions) that can facilitate.

3.5 CD PRIORITIES AND FUTURE INITIATIVES

3.5.1 IOC-LED

This agenda item was introduced by Ms. Johanna Diwa. Her presentation is available from <https://oceanexpert.org/document/35141>.

At the fifth meeting of the Group of Experts on Capacity Development (GE-CD-V), all global programmes and regional sub-commissions were invited to share information on how they plan to address the six outputs of the IOC CD Strategy according to their specific regional needs and priorities. The Group recommended that global and regional programmes consider a mapping exercise to prepare regional CD workplans for discussion at the next meeting of the GE-CD. IOCAFRICA and IOCARIBE participated in this mapping exercise in close collaboration with the IOC CD Secretariat. All RSBs were invited to present the outputs of the matchmaking exercise at this meeting (see agenda item 3.3).

The exercise aims to help identify regional priority CD actions where the IOC assistance and guidance will be most needed and useful, and can also guide the development of project proposals and other new initiatives with the assistance of the IOC CD Secretariat for submission to interested donors. The RSBs were invited to propose new activities that could be (co-)funded by IOC-CD to the extent that they contribute to the implementation of the CD strategy.

3.5.2 JOINT COLLABORATIONS

This agenda item was introduced by Ms Mazzuco. She recalled the recent JCB-WMO meeting discussed the need to explore future collaboration between capacity development activities of the World Meteorological Organization (WMO) and the IOC. It was proposed to start potential test cases with the Meteorology, Climatology, and Geophysical Agency of Indonesia (BMKG), Indian National Centre for Ocean Information Services (INCOIS) for OTGA and India Meteorological Department,

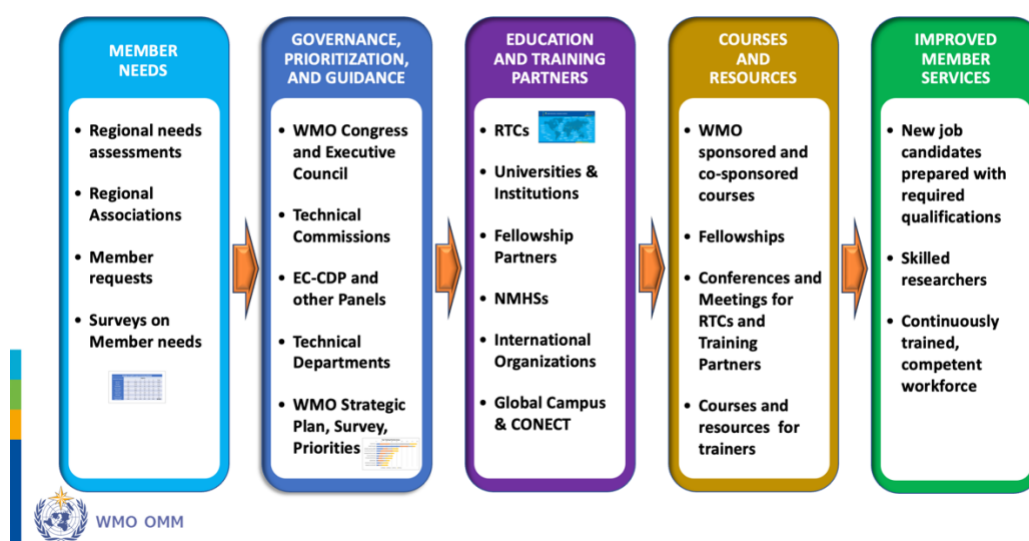
Ms. Mazzuco also reported that the 13th Joint IHO/IMO/WMO/IOC/IALA/IAEA/FIG/IMPA, Capacity Building Coordination Meeting happened at IHO in Monaco in 13-14 May 2024. The meeting aimed to reactivate the network, which did not meet or communicate for the last 4 years, and to discuss opportunities to collaborate and merge action, mainly related to training on maritime and marine topics. During the meeting, there was the opportunity to have a detailed view of how these institutions are coordinating and managing different training activities, as well as the global networks in place. The group identified overlapping priorities and needs, previous joint efforts, and opportunities to develop collaborative projects which are currently on a planning phase. The bottom-up approach to training planning from the regions and member states was also highlighted as an effective way to empower affiliated centres and deliver training fit for local/regional use. The experiences in e-learning were also shared. Resource mobilization was discussed by the group, and IMO proposed assistance and

guidance based on their successful experience in raising funds for capacity development activities. The group was very impressed with OTGA achievements in the last years, particularly with the global impact of the courses (e.g., high numbers of participants and diversity of courses) and coordinated network. IOC CD Strategy was presented. The next meeting is planned to be hosted by IOC/IODE in September 2025, in Oostende.

Mr Mustafa Adiguzel, Scientific Officer, Education and Training Office, Science and Innovation Department (WMO) provided a brief presentation on Capacity Development Process through Education and Training at WMO. His presentation is available from <https://oceanexpert.org/document/35142>.

He explained that WMO regularly implements regional needs assessments: every 4 year a survey is carried out. He stressed that this is a big task. The last one took place in 2021. It identified a large number of people that need to be trained. These are prioritized. The process of WMO Education and Training is shown below.

Capacity Development Process through Education and Training



The survey revealed the following priorities:



WMO now has 30 training centres (see below map)



3.5.3 Other Potential Partners

This agenda item was introduced by the Mr Alan Evans. The Group was requested to share information on other potential partners that the IOC might work within the delivery of capacity development initiatives.

The discussion on priority needs noted that CD strategy action 1.2.2 and 1.2.4 on on-board and training centres are priority programmes in Africa. IOCAFRICA clarified that research vessels are indeed one of the ongoing needs and will be addressed during the biennium, but since the form asked only for activities that need additional support it was not included in the responses. It was noted that the excel matrix that is being used is a live document that will be further developed and completed but is valuable at the moment for inputs in the discussions.

Dr Francis Augustine Pavanathara (INCOIS) offered INCOIS facilities for training and education for marine meteorology, promoting cooperation between IOC and WMO. INCOIS offers both short-term technical courses as well as PhD degree courses so any course duration can be considered.

Mr Ibukun Adewumi noted that there is a window of opportunity to support the RSBs to develop a running plan for CD. There are challenges and needs in the region and a strategic plan is needed. Cooperation with WMO can increase the offering of training through the various training centres. He inquired about WMO fellowships and whether these could be used to ensure that science is driving activities in Africa.

Mr Mustafa Adiguzel noted that WMO is authority in UN for weather and climate matters. He clarified that MoUs and agreements with institutions are necessary to establish fellowships. It is not limited to climate sciences. He extended an invitation to the IOC to participate in the WMO CD panel.

Ms Gabriella Kossmann inquired about CD partnerships and ongoing discussions with FAO as well as UN Oceans. Ms Mazzuco reported that there have been no meetings with FAO although they have e-learning platform. Mr Pissierssens noted the need to look at work plans of RSBs for existing cooperation with FAO and then establish links with CD through those.

Mr Henrik Enevoldsen explained that IOC is the focal point for a UNESCO Category II centre in Iceland that deals with sustainable fisheries. It focuses on science for sustainable fisheries which is an underlying foundation of training people at master's level on fisheries activities thus there is a need to see fisheries in broader context of sustainable use. These topics can be expanded by making better use of co-ownership of the UNESCO ownership of the Category II centre. There is now an external review for that centre.

Ms Ann-Katrien Lescrauwaet shared that as a follow-up to the OTGA/VLIZ self-paced courses on marine biodiversity data management, FAO contacted VLIZ to open up their courses so marine biodiversity data management is a core part of the training and they invited the Training Center to complement their courses: 2-3 days on stock assessment and then the Data Management course.

POGO and SCOR were also mentioned as partners. Since some years POGO has included in working group proposals a requirement on a CD component. GE-CD and OTGA were frequently referred to in national meetings they joined.

In the context of the Decade, Ms Lescrauwaet mentioned about OceanMatcher which is under development for potential resource on philanthropic organizations providing funding. The CD website also offer information on funding opportunities through the regional and global programmes.

The Group urged the IOC global programmes and RSBs to study the report of this meeting and continue discussing with the IOC CD Secretariat the potential joint CD activities and actions based on the needs identified in the mapping exercise while also supporting the implementation of the strategy.

The Group agreed to discuss with the IOC JCB representative participation at the WMO CD panel.

The Group requested the IOC Executive Secretary to contact the WMO Secretary General suggesting participation of a Co-Chair of the GE-CD as observer in the WMO CD panel.

The Group recommended that a representative from WMO should be invited as an observer to the GE-CD and requested the IOC Executive Secretary to send an invitation to the WMO Secretary General.

The Group decided to bring/share relevant information and advice on how to approach potential partners or donors in support of the implementation of the IOC CD Strategy.

The Group welcomed closer collaboration with WMO, FAO, POGO, CBD, ISA, SCOR as well as other potential partners (including private sector, NGOs) and called on the Secretariat as well as members of the Group to promote, establish or expand such cooperation.

The Group invited the RSBs and IOC global programmes to identify UN and other partners and seek collaboration with these based on the RSB work plans and needs assessments.

4. ELECTION OF CO-CHAIR/S

This agenda item was introduced by Mr Alan Evans. He noted that the renewed Group was expected to elect their own co-chair/s at their first meeting. As requested by the IOC CD Secretariat in September, nominations were sought from the Group based on the following Terms of Reference for the Co-Chair/s.

- (i) have knowledge about IOC's CD activities and Regional Subsidiary Bodies (RSBs);
- (ii) have the necessary time to carry out Chair duties (i.e. Chairing 1 in-person and between 1 and 3 online meetings/year;
- (iii) consult with the IOC CD secretariat on CD work plan implementation;
- (iv) contribute to the development and preparation of working documents;
- (v) participate in IOC governing body meetings (June) to report on progress of the GE-CD.

Mr Evans presented the candidacies for the Co-Chair/s of the Group based on nominations submitted to the IOC CD Secretariat. He then opened the floor for paper-based voting.

The Group elected Dr Suzan El-Gharabawy and Dr Lina Eyouni as Co-Chair/s of GE-CD.

The Group expressed their heartfelt thanks to Mr Alan Evans for his leadership in the past GE-CD sessions.

5. ESTABLISHMENT AND DISCUSSIONS OF WORKING GROUPS (WG)/TASK TEAM (TT)

5.1 ESTABLISHMENT OF WGs AND TT

This agenda item was introduced by Ms. Johanna Diwa. Her presentation is available from <https://oceanexpert.org/document/35146>.

She recalled that the fifth session of the GE-CD proposed the establishment of Working Group on Implementation Plan and a Working Group on promotion and outreach which will guide the development and drafting of an implementation plan of the IOC CD Strategy. A communication/outreach plan ([IOC-32/4.3.Doc\(2\)](#)) has already been approved by the 32nd Assembly of the IOC but once the Implementation Plan of the IOC CD Strategy is developed and adopted by the 33rd Assembly of the IOC June next year, another Working Group on the implementation of the communications and outreach plan needs to be established. To deliver the tasks under the new TOR of the Group (Annex Decision EC57/4.6), it was also proposed to establish a Task Team on needs assessment as required in the deliverables in view of below. Since the most urgent needs are related to the needs assessment and the implementation plan, only the **WG on the Implementation Plan** and **Task Team on needs assessment** would need to be established at this point.

GE-CD TASKS (Annex Decision EC57/4.6)	WG/TT
1. assist global and regional programmes with the implementation of capacity development needs assessments in a consistent manner;	Task Team to develop a “template” needs assessment methods for the use of the RSBs prior to their next sessions in spring 2025
2. also assist global and regional programmes with the development of programmatic and regionally relevant capacity development work plans based on the IOC CD strategy and related needs assessments, building on ongoing activities and making use of existing training and education facilities;	Task Team to share needs assessment results from RSBs shared with global programmes to 1) identify actions that can assist the RSBs and 2) inform IOC CD Secretariat to build a workplan or new initiatives to respond to the needs, and 3) identify areas where RSBs can work together
3. develop an implementation plan for the current IOC CD Strategy 2023-2030 for submission to the IOC Assembly at its 33 rd session in June 2025;	Working Group on Implementation Plan (also making use of 1 & 2 above)
4. provide advice to global and regional programmes on the implementation of the IOC Capacity Development Strategy 2023–2030 and on relevant methods and tools to improve the quality and impact of CD efforts;	Working Group on Implementation Plan; IOC CD Secretariat/OTGA
5. advise the IOC CD Secretariat on the design and implementation of the biennial CD survey in close collaboration with the regions, possibly including CD implementation impact monitoring/metrics, also taking into account other methods such as regional reviews, science conferences, etc.;	Task Team on needs assessment/survey to help redesign the CD survey based on 1-4 above; IOC CD Secretariat

6. ensure coordination of the work of the Group of Experts and its Task Teams with GOSR and CD aspects of the United Nations Decade of Ocean Science for Sustainable Development, including the Capacity Development Facility and Working Group 9 of the Vision 2030;	GE-CD
7. guide the further development and promotion of the Ocean CD-Hub by highlighting linkages of CD activities and collaboration opportunities between users and providers and among other global, regional and national organizations;	GE-CD
8. provide advice to Member States on the promotion of visibility and reach of the IOC Capacity Development Strategy 2023-2030 to assist with the planning and implementation of their capacity development efforts;	Working Group on Promotion/Outreach
9. report results to the Assembly at its 33rd session.	

Ms Diwa presented the expected deliverables and timeline related to the instructions for the IOC33 for the reference of the WG on IP and TT. She then asked the participants to join the Working Group or Task Team that they want to be a part of.

5.2 WGs/TT BREAKOUT DISCUSSIONS

The WG and TT had their break-out groups and discussed the following:

Task Team:

1. Elect a chair.
2. Review timeline and tasks
3. Agree on who does what and when
4. When and how to organize succeeding meetings
5. Existing tools on needs assessment, model template?

Working Group on Implementation Plan:

1. Elect a chair.
2. Review timeline and tasks
3. Agree on who does what and when
4. When and how to organize succeeding meetings
5. What is in the IP? Table of contents, structure, etc.

5.3 PLENARY REPORT FROM WGs/TT

Each Working Group/Task Team reported the highlights of their discussions in the plenary.

5.3.1 Task Team on Needs Assessments/Survey

Membership: Gabriella Kossmann (Chair), Natalia Stepanova, Laura Correa, Lina Eyouni, Elva Escobar, Ana Caroline Mazzuco, Ahmad Al Karim. David O’Sullivan, Ibukun Adewumi.

Mr O’Sullivan reported on behalf of Ms Kossmann. He shared the discussions of the Group on the task at hand on creating a survey that will be sent to all IOC MS asking for their needs.

This will be sent to IOC Focal Points and should get one response per nation. There were also discussions on issues such as whether the survey will be sent to individual scientists or focal points and the questions and the way to ask these questions to prioritize needs.

As for next steps and workplan, the modality and communication channels will be via email and WhatsApp. He mentioned that the next meetings will be on 31/10 followed by another 3 meetings in November and a final template will be provided by the 1st week of December.

Regarding timing, the work from the Task Team will be fed into the WG IP if they are done by December. The challenge of a tight timeline may have to consider looking at first on the region's work plans and then ask for more specific inputs from MS later on.

Referring to the alignment of the survey with the Decade, it was clarified that the previous versions of the Strategy integrated questions related to the Decade at its early inception. Now that the Decade has its own CD chapter and CD Facility, the TT may have to decide if it is still necessary to include Decade related questions. Ms Diwa-Acallar also responded to the question on the alignment with the Global Ocean Science Report, noting that the CD Secretariat collaborated with the GOSR team in the last 2022-2023 CD survey.

5.3.2 Working Group on Implementation Plan

Membership: Rebecca Lahl (Co-Chair), Masahiko Fujii, Viktor Komorin, Massata Ndao, Hai Doan-Nhu, Yesim Aslanoglu, Suzan El-Gharabawy, Madona Madona, Carlos Torres (Co-Chair), Ann-Katrien Lescrauwaet, Ana Suarez, Zacharie Sohou, Carlos Martin Barrientos, Francis Augustine Pavanathara.

Ms Lahl reported that they started with timeline and basic tasks and presented a provisional Table of Contents of the Implementation Plan as well as the allocated writing responsibilities.

1. Executive Summary
 - Overview of Ocean Research Capacity Development
 - Purpose and Objectives
 - Key Stakeholders
 - Conclusions
2. Introduction
 - Background and Context
 - Importance of capacity development in ocean research and society
 - Current gaps in capacity development
 - Rationale for Capacity Development
 - Alignment with global or regional ocean science goals (e.g., UN Decade of Ocean Science)
 - Socio-economic and environmental impact
 - Evaluation and Monitoring (refer to KPI)
3. Goals and Objectives
 - Refer to the goals of the CD Strategy
 - Objectives: "An Implementation Plan will be developed that will articulate in greater detail how the Actions listed will be delivered and progress and effectiveness monitored.
 - Aimed to strengthen institutional capacities national and regional capabilities in ocean science and governments (strengthen IOC/UNESCO as an organisation)
 - Support transfer of technology and knowledge sharing among member states

- Audience: Member States, IOC/UNESCO bodies, participants/partners, funders/donors
- Alignment with International Commitments and Policies
 - Sustainable Development Goal (SDG) 14
 - Ocean Decade Goals / White Paper Goal 9
 - Other global frameworks (if necessary)

4. Stakeholder (beneficiaries and partners) (Mapping)

Objective of this chapter: Identify Impact of stakeholders on the Strategy and the Implementation

- Identification of Stakeholders
 - Member States
 - Global and Regional IOC Programs
 - Governmental bodies
 - Research institutions and universities
 - Private sector
 - International organizations
 - Indigenous and local communities
 - NGOs
 - ...
- Roles and Responsibilities: (stakeholder impact matrix)
- Communication Strategy (very short, linking to Outreach plan)

5. Capacity Needs Assessment

Coming from the TT and survey and Mapping of RSBs

- Background:
 - Global Ocean Science Report
 - Lack of information (and environment) and knowledge sharing (due to many reasons).
 - Analysis of Existing Capacity (Needs)
 - Identification of Capacity Gaps
- Structure of the 6 outputs!

6. Capacity Development Strategies and Programs under IOC/UNESCO (and Member States, potentially in annex?)

Development of a table to share online, structured in the CD Strategy Matrix, Input from global and regional programs

- 6.1 Human Resources Development
 - Training programs (e.g., workshops, scholarships)
 - Mentorship, Internships, and exchange programs, international Mobility
 - Professional development for researchers and technicians
 - OTGA – CDF -....
- 6.2 Infrastructure and Technological Capacity
 - Laboratory facilities
 - Data management systems
 - Ocean research vessels and field equipment
- 6.3 Institutional Strengthening
 - Organizational development

- Strengthening networks and collaboration (SDG17)
- 6.4 Education and Public Awareness
 - University programs in oceanography and marine sciences
 - Public engagement and ocean literacy initiatives
- 6.5 Gender and Inclusivity
 - Ensuring participation of women, youth, and marginalized groups
- 6.6. Partnership Approach

7. Implementation Framework

Define how to achieve the actions of the strategy:

Matrix of CD Strategy / 6 Outputs: workplan to each of the actions, target groups, partners, resources,

- Priority Actions? results regional RSBs
- Describe a phased approach (general Timeline with very general milestones : Launch of the Strategy, Implementation Plan, Communication, Evaluation)

8. Partnerships and Collaboration (as part of the implementation framework)

- Regional and International Collaboration
 - Role of regional networks (e.g., IOC, CBD, POGO, SCOR,WMO, IHO, ISA, FAO...)
 - Collaborative capacity development projects?
- Public-Private Partnerships
- Engagement with industry (tourism, fisheries and aquaculture, shipping, offshore energy)

9. Monitoring and Evaluation Framework

- Key Performance Indicators (KPIs)
- Tools and metrics for measuring progress
- Reporting timeline and template

10. Risk Management and Sustainability

- Potential Risks and Mitigation Strategies
 - Institutional challenges
 - Technological obsolescence and scientific equipment
 - Political instability or lack of funding
- Sustainability of Capacity Development Initiatives, beyond 2030
 - Long-term funding models?
 - Embedding capacity within local institutions, RSB, RTC
- Adaptability and Future Needs

11. Resource mobilisation / funding (part of the implementation)

- Funding Mechanisms
 - International donors
 - Private sector investment
 - National funding agencies
 - Ocean Decade, CDF, OTGA/IODE

12. Communication

- Link with outreach and communication plan

6. OTHER ITEMS/INITIATIVES

6.1 CD BIENNIAL SURVEY

This agenda item was introduced by Ms Johanna Diwa. Her presentation is available from <https://oceanexpert.org/document/35147>.

She recalled that the IOC Capacity Development Needs Assessment Survey had three reiterations since 2018 ([Annex VI of IOC/GE-CD-TT-I/3](#)) followed by the 2020 survey (<https://surveys.ioc-cd.org/index.php/2020-survey>) and the most recent 2022-2023 edition. All detailed responses of the survey can be found at <https://surveys.ioc-cd.org>.

Based on the earlier version of the questionnaire used in 2018, the 2020 survey expanded overall the scope of CD stakeholder groups while the third survey sought contributions from Member States through their IOC national focal points. The online survey was opened on 4 January 2023 at <https://www.surveymonkey.com/r/JQLDQK8> and closed on 10 March 2023.

The information gathered by this survey were expected to contribute to assessing the capacity development needs in ocean science related issues and will also contribute to addressing capacity needs related to the UN Decade of Ocean Science for Sustainable Development 2021-2030.

At the GE-CD-V, the Group provided some recommendations for the next iteration of the IOC CD needs assessment survey for 2024-2025. Given the low response rate, the close engagement and involvement of the regional secretariats in the design and conduct of the survey was underlined to capture specific CD needs in their respective regions. It was also proposed to seek inputs from the global and regional programmes on a list of stakeholder groups that will be ideal respondents in the survey. Finally, the Group proposed collaboration with other survey requirements of other programmes such as e.g. GEBICO, CD Facility, Ocean Policies, GOSR, SOPM, etc., that can be integrated in the survey. etc.

A small Task Team on needs assessment/survey (See 5) is expected to help in the redesign of the IOC CD biennial needs assessment survey based on the outcomes of their work with the RSBs.

6.2 Sustainable Ocean Planning and Management (SOPM)

Discussed under 3.2.2.

6.3 Biodiversity Beyond National Jurisdiction (BBNJ) Agreement

This agenda item was introduced by Ms Johanna Diwa. Her presentation is available from <https://oceanexpert.org/document/35151>.

Ms Diwa recalled that on 19 June 2023, the Conference adopted, by consensus, the Agreement under the United Nations Convention on the Law of the Sea on the conservation

and sustainable use of marine biological diversity of areas beyond national jurisdiction ([A/CONF.232/2023/4](#)) (<https://www.un.org/bbnj/>).

She referred to the potential IOC services related to the BBNJ Agreement in the following areas:

Marine genetic resources

- Access to MGR-related data and information (OBIS)
- Pacific Islands Marine Bioinvasions Alert Network (PacMAN): *Build capacity on MGR-related technologies related to bioinvasions*

Area-based management tools

- Marine spatial planning: MSP Global Initiative, includes transboundary MSP
- GEF funded IW:LEARN program working with Large Marine Ecosystem (LME) projects: *Possibility for transboundary pilot projects, as LMEs can extend into ABNJ*

Environmental impact assessments (EIA)

- Scientific observation data IODE systems are used for EIAs and environmental assessments
- Data from OBIS, the World Ocean Database, and the IODE network *provide a source of data for EIAs, including in ABNJ*

She shared that the new UN Treaty will require a data and information system, or clearing-house mechanism to manage and access data and information related to the various elements of the agreement including:

1. Capacity building and transfer of marine technology (CBTMT)
2. Area-based management tools including marine protected areas
3. Environmental impact assessments
4. Marine genetic resources.

To produce the basis for delivering meaningful and integrated information at global scale, the BBNJ CBTMT system would need to address access to existing bodies of data, as well as facilitate coordinated entry of new in-situ and other data relevant to the treaty.

Over the past decades, IOC/UNESCO has successfully designed, operated, and connected a network of data and information systems to assist the global community to discover, understand, and manage life in the sea. IOC Ocean data infrastructure interoperates with existing data bodies to provide free and open access to marine biodiversity data through the Ocean Biodiversity Information System ([OBIS](#)), the largest clearinghouse of its kind, also facilitating the connection with other spatial ocean data hubs through the Ocean Data and Information System ([ODIS](#)). These systems, data portals, and associated networks of specialized centres deliver several marine biodiversity data products and services, applied to address a wide range of uses and multiple stakeholders (e.g., [knowledge generated using OBIS datasets](#)).

Overall purpose (objectives) and relevance: needs and issues:

The IOC is a recognized competent UN body for CD/TMT and with the current developments under its Ocean Data and Information System (ODIS), IOC is also well positioned to support the to be established BBNJ secretariat by further development and expansion of its data system, and to provide technical support for the CHM managed by the BBNJ secretariat. The

IOC-UNESCO Criteria and Guidelines on the Transfer of Marine Technology can provide the guidance and substantive scope of technology needs assessments including its capacity development needs assessment based on its experience from its successful initiatives.

This pilot project intends to demonstrate the utility of the Ocean Data and Information System infrastructure, to support the needs of a **Biodiversity Data Hub for the High Seas**.

Implementation strategy:

The **Biodiversity Data Hub for the High Seas** will build on technology developed under the Ocean InfoHub project and will develop a demonstrator for several elements of the BBNJ Clearing-House Mechanism.

This project **will not develop the BBNJ-CHM**, but will use ODIS technology in a pilot project to demonstrate how it can serve a future BBNJ CHM:

Part 1: Development of a pilot biodiversity hub (*this section is under revision given the amended budget*)

ODIS/OIH currently possesses the capability to function as an information hub for discovering and accessing a diverse range of information, including documents, reports, and training opportunities related to various aspects of BBNJ. Nevertheless, there is room for enhancement in both the Linked Open Data specifications and the back- and frontend of ODIS/OIH. This improvement aims to fine-tune the system and create a BBNJ hub or interface on ODIS.

This interface will enable Member States and a prospective BBNJ Secretariat to register, monitor and effectively manage diverse information sources. This includes tasks such as classification or flagging, quality assurance and compliance, among others. Once published, these resources will be easily findable and accessible. Additionally, users will have the capability to receive notifications about new resources, enhancing the overall functionality of the platform.

Furthermore, a consultant will craft comprehensive guidelines and training materials for Member States, ensuring the publication of BBNJ-relevant information in a manner compliant with ODIS standards. This includes the proper registration of these resources in a dedicated 'BBNJ' registry (i.e. the ODIS Catalogue). The consultant will also develop outreach and communication material.

Part 2: Desktop study on CHM requirements and solutions related to Marine Genetic Resources (*this section is under revision given a White Paper just released on MGR*)

Managing data and information related to Marine Genetic Resources (MGR) is complex and requires the involvement of various existing organizations. A consultant will conduct an in-depth study to explore the essential elements for the MGR component of the BBNJ CHM, identify the major stakeholders and recommend technical solutions. The results of this comprehensive study will provide a plan including resource requirements to develop an MGR hub as part of ODIS/OIH.

The Group recommended the Task Team on Needs Assessment/Survey to help redesign the CD biennial survey based on feedbacks from the RSBs.

The Group recommended to the Task Team and Working Group to consider the reports of previous RSB meetings including their workplans, as well as previous biennial CD needs assessment survey reports.

The Group noted the related services of the IOC capacity development in the CBTMT/CHM requirement of the BBNJ package and expressed support for the project "Biodiversity Data Hub for the High Seas".

7. ANY OTHER BUSINESS

There was none.

8. WORKPLAN FOR THE INTERSESSIONAL PERIOD

ACTIVITY	ASSIGNED ROLES/LEAD	DUE DATE	OUTPUT
<i>As discussed under agenda 2, 3 and 5, the following tasks relating to instructions for the IOC-XXXIII Assembly:</i>			
Develop needs assessment 'template' <i>(TT online meeting/s: Oct 31, Nov 14, Nov 28)</i> <i>Joint meetings to be organized with the WG IP and TT</i>	TT on Needs Assessment/Survey	December 2024	Needs Assessment Template
Develop implementation plan <i>(Next online meeting/s: Nov 27, monthly thereafter)</i>	Implementation Plan Working Group (IP); RSBs	February 2025	RSBs Needs Assessment
	Implementation Plan Working Group (IP); Global Programmes	April 2025	Draft implementation plan
	GE-CD	May 2025	Final Implementation Plan
Submit Implementation Plan to the IOC-33 Assembly Secretariat	IOC CD Secretariat (Johanna Diwa)	May 2025	Working documents submission to IOC33 Secretariat
Report at the IOC-33	Co-Chair/s IOC CD Secretariat (Johanna Diwa)	June – July 2025	Presentation at the IOC33
<i>As discussed under agenda 6.1:</i>			
Redesign CD biennial survey	TT on Needs Assessment/Survey IOC CD Secretariat GE-CD	June – July 2025	Survey Questionnaires
Implement CD biennial survey	RSBs Secretariats IOC CD Secretariat	August – October 2025	
	IOC CD Secretariat	October 2025	Survey Report

The Group adopted the workplan for the next intersessional period.

9. MEETING REPORT AND CLOSING

Ms Johanna Diwa presented the decisions discussed by the Group under each agenda. The adopted the decisions are summarized in this report (highlighted in yellow text).

The Group adopted the decisions and requested the Secretariat to finalize the report, send it to the members for their review and upload for circulation.

Mr Peter Pissierssens briefly thanked the Group and informed them that it was his last GE-CD meeting to participate it as he will be retiring next year. The Group expressed their appreciation of the great contributions and leadership of Mr Pissierssens over the long years at IOC.

The Co-Chair/s thanked the GE-CD members and all the participants for their active participation in the meeting. They closed the meeting at 11h05.

ANNEXES

- Annex I. Agenda
- Annex II. List of Participants

Annex I.

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (of UNESCO)

Sixth Session of the IOC Group of Experts on Capacity Development (GE-CD-VI)
IOC Project Office for IODE, Oostende, Belgium
22-24 October 2024

AGENDA

- 1. OPENING AND INTRODUCTIONS**
 - 1.1 ADDRESS BY THE CHAIR
 - 1.2 TOUR-DE-TABLE (INTRODUCTIONS)
 - 1.3 ADOPTION OF THE AGENDA AND TIMETABLE

- 2. OVERVIEW OF GE-CD AND PAST SESSIONS**
 - 2.1 GE-CD SESSIONS 1-5
 - 2.2 EC57 OUTCOMES AND INSTRUCTIONS for IOC-33
 - 2.2.1 Revision of the GE-CD TORs (WGs and TTs, see under 4.1)

- 3. IOC CD STRATEGY, CD ACTIVITIES AND NEEDS**
 - 3.1 IOC CD STRATEGY 2023-2030

 - 3.2 IOC CD activities and needs (global)
 - 3.2.1 Ocean Science Section (OSS)
 - 3.2.2 Marine Policy Research (MPR)
 - 3.2.3 Global Ocean Observing System (GOOS)
 - 3.2.4 Tsunami Resilience Section (TSR)
 - 3.2.5 Ocean Decade
 - 3.2.6 Ocean Teacher Global Academy (OTGA/IODE)
 - 3.2.7 Ocean Biodiversity Information System (OBIS/IODE)
 - 3.2.8 Ocean Data Information System (ODIS/IODE) (Also see 6.3)

 - 3.3 IOC CD activities and needs (regional)
 - 3.3.1 IOCAFRICA
 - 3.3.2 IOCARIBE
 - 3.3.3 WESTPAC
 - 3.3.4 IOCINDIO

 - 3.4 New IOC CD Activities
 - 3.4.1 Internships
 - 3.4.2 Mentoring

 - 3.5 CD Priorities and Future Initiatives
 - 3.5.1 IOC-Led
 - 3.5.2 Joint Collaborations (BMKG, INCOIS, WMO, etc)
 - 3.5.3 Other Potential Partners/Funders

- 4. ELECTION OF CO-CHAIR/S**

5. ESTABLISHMENT OF WORKING GROUPS/TASK TEAM

5.1 Establishment of WGs and TT

5.2 WG Breakout Discussions

5.2.1 Task Team on Needs Assessments/Survey

5.2.2 Implementation Plan Working Group

5.3 Plenary Report from WGs/TT

5.3.1 Task Team on Needs Assessments/Survey

5.3.2 Implementation Plan Working Group

6. OTHER ITEMS/INITIATIVES

6.1. CD Biennial survey

6.2. Sustainable Ocean Planning and Management (SOPM) (under 3.2.2)

6.3. Biodiversity Beyond National Jurisdiction (BBNJ) Agreement

7. ANY OTHER BUSINESS

8. WORKPLAN FOR THE INTERSESSIONAL PERIOD

9. MEETING REPORT AND CLOSING

Annex II. LIST OF PARTICIPANTS

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