

Intergovernmental Oceanographic Commission
Reports of Meetings of Experts and Equivalent Bodies



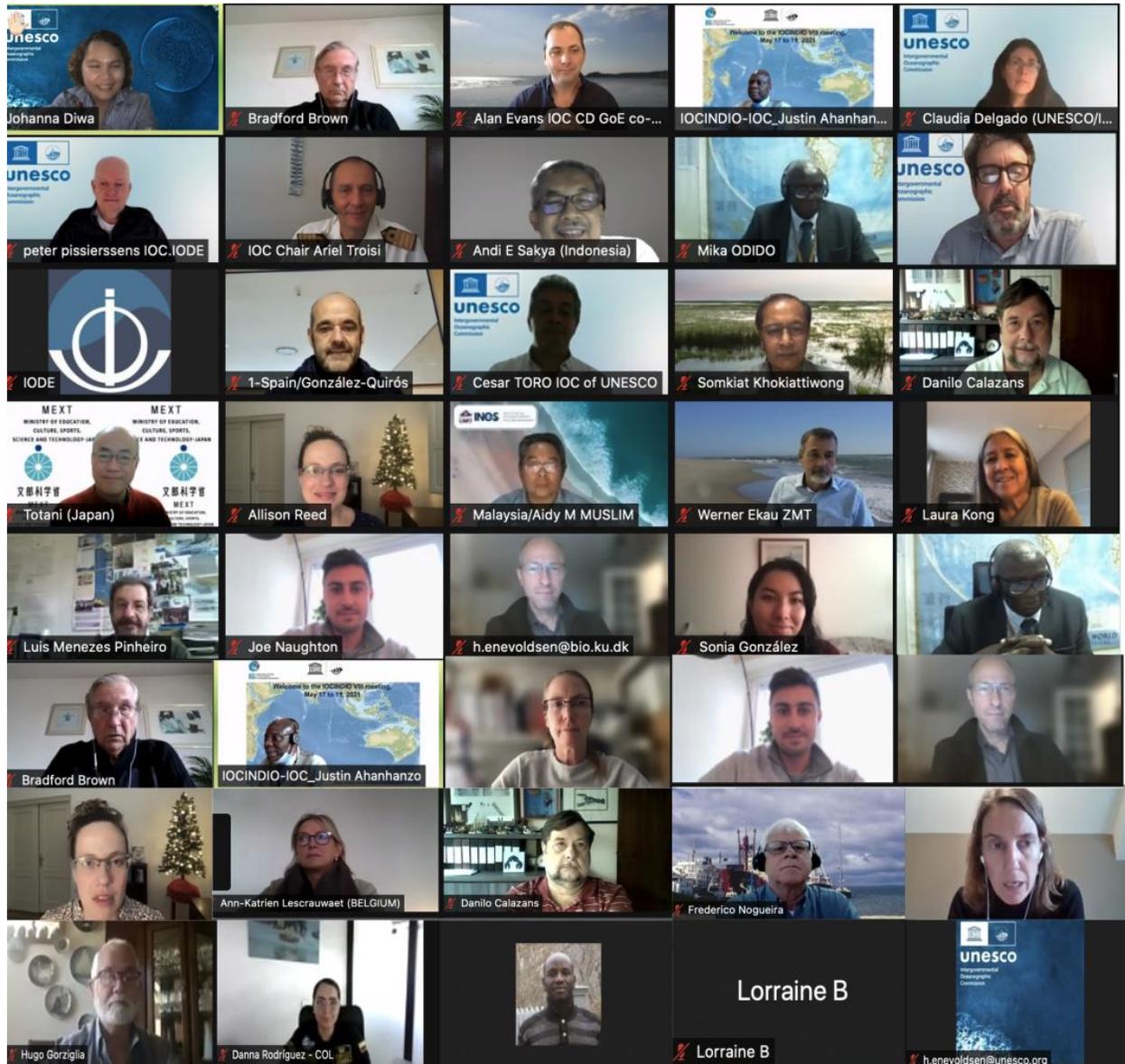
IOC Group of Experts on Capacity Development

Third Session

Online meeting
1-2 December 2021

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1. OPENING OF THE MEETING

1.1 ADDRESS BY THE CO-CHAIRS OF THE GROUP OF EXPERTS

The meeting was opened by Mr. Ariel Troisi, IOC Chair and co-Chair of the IOC Group of Experts on Capacity Development.

He welcomed the participants. He noted that, in addition to the members of the Group, this meeting also invited the new IOC CD national focal points. He explained that due to Covid-19 it was not possible to organize the meeting in the traditional face-to-face format but had to be organized as an online meeting. In this regard he apologized for the difficult or impossible timing for some of the participants who for this reason were not able to participate live.

1.2 ADOPTION OF AGENDA AND TIMETABLE

The meeting was then addressed by Mr Alan Evans, co-Chair of the Group.

He explained that, due to the short time available, the agenda had to be limited to essential agenda items. Participants were invited to send questions through the online chat room. He referred to the web page https://www.ioc-cd.org/index.php?option=com_oe&task=viewEventRecord&eventID=3260 which included the Agenda, List of Documents and List of Participants. He informed the Group that all PowerPoint presentations were to be made available on the webpage https://www.ioc-cd.org/index.php?option=com_oe&task=viewEventDocs&eventID=3260.

Ms Johanna Diwa proposed adding an agenda item on “Date and Place of Next Meeting” as agenda item 8.

The Group **adopted** the revised agenda for the meeting.

2. STATUS OF THE WORK OF THE 2nd SESSION AND INSTRUCTIONS BY IOC-XXXI

2.1 REPORT ON IMPLEMENTATION OF THE GE-CD-II WORK PLAN

2.1.1 REPORT ON THE OCEAN INFOHUB PROJECT AND ITS CONTRIBUTION TO THE TMT/ CHM

This agenda item was introduced by Ms Lucy Scott, OIH Project Manager.

Ms. Scott recalled that during its [2nd Session](#) (online, 26 October 2020), the Group requested the Ocean InfoHub project to regularly report to the GE-CD on its work plans, activities and results. She started the presentation with a brief background of OIH.

The First Joint Meeting of the Task Teams of the IOC Group of Experts Capacity Development on Capacity Development requirements of Member States and implementation of a Clearing House Mechanism for the Transfer of Marine Technology was held at UNESCO/IOC Headquarters, 13-14 March 2019.

- 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 hybrid model: online central portal with deep-links to regional/sectoral CHM portals”.

Based on this, INVEMAR (Colombia) developed a pilot CHM for the Latin America and Caribbean region, in the context of the Caribbean Marine Atlas (CMA-II) project. The pilot “Clearing-House Mechanism LAC) (<http://portete.invemar.org.co/chm>) is a hybrid model, with a centralized portal that provides access to information sources identified by the users as most relevant (Databases on Training and Education resources, List of experts, Research vessels,...) and integrated from a number of existing web sources developed and maintained under IOC (OceanExpert, Ocean Teacher Global Academy, ODISCat)

Ocean InfoHub Project Overview

From these and several other preparatory activities, the OIH Project was designed and approved.

- The IOC Ocean InfoHub Project (OIH) is a global initiative to improve access to marine and coastal data and information.
- It is a three year project that commenced in April 2020
- The project is funded by the Government of Flanders (Kingdom of Belgium)
- The objective of the project is to **develop interoperability between existing information systems**, thus improving the flow of information to end users.

There were three closely related initiatives

1. The **Ocean InfoHub Project**

2. IOC **Ocean and Data information system Catalogue of data sources** (ODISCAT), currently describes over 3000 online sources of marine & coastal data in 16 categories
3. The **Ocean Data and Information System**

The OIH Project has developed the first phase of the architecture underpinning ODIS, and is concerned with involving user communities and establishing proof-of-concept of ODIS.

The OIH will first work with global IOC-associated online resources – including:

- OceanExpert : *People*
- AquaDocs : *Documents and Publications*
- The GOOS/IODE Ocean Best Practices System (OBPS)
- Data: the Ocean Biodiversity Information System (OBIS)
- Data: the World Ocean Database (WOD)
- extended by partnerships with EurOcean, Marinetraining.eu, EMODNET, and other sources in the IOC ODIS Catalogue of Sources (ODIScat).

Initial data types are:

1. People and institutions/organizations
2. Documents
3. Spatial data/maps
4. Training opportunities
5. Vessels (research opportunities)
6. Projects

The Project has five work packages. The work plan is on track with no major technical delays.

WP1: Project management, coordination and evaluation

WP2: Technology development

WP3: Establishment and initial support the global hub and regional nodes

WP4: Training and capacity development of regional nodes

WP5: Communication, user marketing and feedback

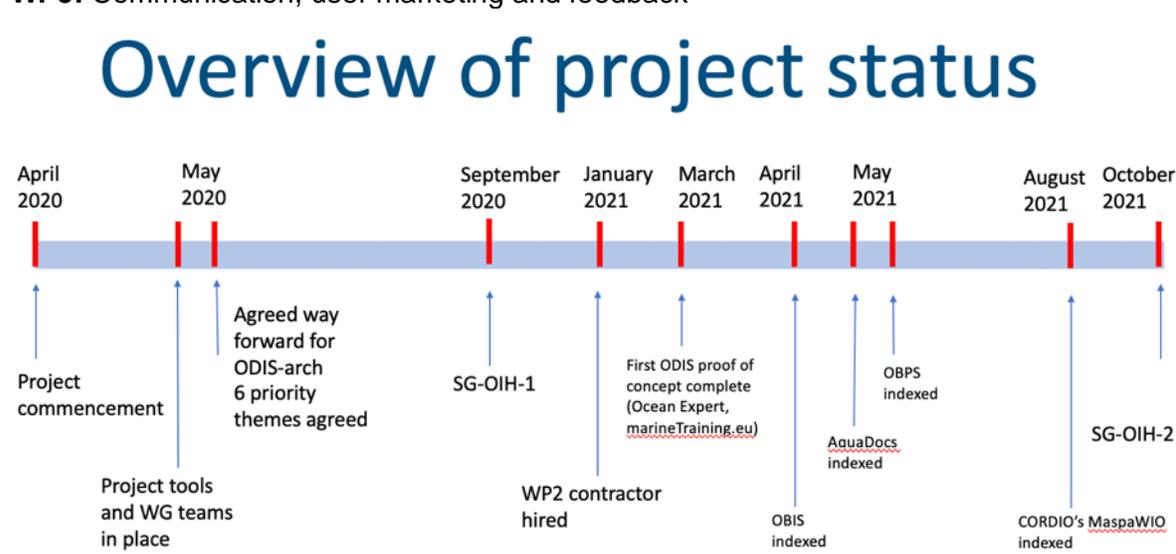


Figure 1. OIH Work Plan

She explained that the following seven sources were integrated into the Ocean InfoHub Knowledge Graph. Work was underway with several other partners to also bring their holdings into the graph.

- AquaDocs; domain: <https://oih.aquadocs.org/aquadocs.json>
- Ocean Best Practices; domain: <https://oih.oceanbestpractices.org/obps.json>
- Marine Training EU; domain: <https://marinetraining.eu/>
- Marine Institute Data Catalogue (1); domain: <http://data.marine.ie>
- OceanExpert UNESCO/IOC Project Office for IODE; domain: <https://oceanexpert.org/>
- Ocean Biodiversity Information System; domain: <https://obis.org>
- Marine Spatial Atlas for the Western Indian Ocean (MASPAWIO) domain: <https://maspawio.net>

ODIS-architecture implementation by partners: proof of concept working spreadsheet.

<https://docs.google.com/spreadsheets/d/13bn9IPL8mYOwwolKtTfx1XqW4FJsvofLSivevGTG7UE/edit?pli=1#gid=0>

- We have the Ocean InfoHub website at <https://oceaninfohub.org/>
- We have developed and tested a reference implementation of the global hub server side architecture <https://oceans.collaborium.io/index.html> that demonstrates the facility to search across the existing seven working implementations. This is available online.
- We have a call open for the development of an OceanInfoHub Global Hub Search Portal as a demonstration of the ODIS. The contractor will be charged with developing a front-end web portal that dynamically builds content based on the (meta)data shared by early implementers of the ODIS-Architecture. This portal will have a high profile on the OIH web site home page.

Activities in three regions

1. African region,
2. Latin America and Caribbean region, and the
3. Pacific Small Island Developing States

These three regions have participated in the development of the proposal for the Ocean InfoHub Project and will take a lead on **pilot projects to test interoperability** between existing information hubs.

Regional nodes are currently online independently:

- IOCAfrica: <https://www.ioc-africa.org/>
- INVEMAR CHM-TMT: <http://portete.invemar.org.co/chm#/>
- SPREP and SPC: <https://www.spc.int/>, <https://www.sprep.org/>

We also do have regional data in the global OIH knowledge graph

The global hub search portal will showcase the three regions.

OIH-supported development work within each of the regions is actively bringing additional regional partners into the network.

Training courses

IOC/OTGA/OIH Training course: **Implementing the Ocean Data and Information System (ODIS) architecture**. 25-29 October 2021 [online]

Training course materials also contributed to:

- ICAN9 Session III – Sharing your Atlas with the World (OceanInfoHub & [Schema.org](https://schema.org))
- IOC/OTGA/RTC/Tianjin 2021 training course [Course: Ocean Data Stewardship in the Decade of Ocean Science for Sustainable Development \(oceanteacher.org\)](https://oceanteacher.org).

The Ocean InfoHub Project will contribute to the CD chapter of the Decade as follows:

- The OIH is needs driven, with investment in tools that have been requested by regions
- The OIH will optimise the exchange of knowledge, information and learning
- It responds to national and regional priorities
- It will respect cultural and geographic diversity (regional identity of hubs, including language)
- Targets knowledge generators and users
- Builds on and strengthens existing resources
- Focuses on the transfer of local knowledge,
- on supporting early career scientists,
- and on remedying gender disparity by increasing access to information, technologies and opportunities.

In conclusion, the Ocean InfoHub Project will facilitate better access to global databases, but also better visibility of national and regional data holdings. Users can more easily discover what they need. Regions and countries can learn from each other; Africa, Pacific and LAC regions all have success stories that will be useful to share. The OIH contributes to the CD chapter of the UN Decade of Ocean Science for Sustainable Development by providing an opportunity for partners and users to contribute to and access the UN Ocean Decade global data ecosystem while also offering capacity development opportunities to all to participate equitably.

2.1.2 REPORT ON CONSULTATIONS ON THE REVISED TERMS OF REFERENCE OF THE INTER-SESSIONAL TASK TEAM TO START WORK TO IDENTIFY CD REQUIREMENTS OF MEMBER STATES IN RELATION TO THE IOC CD STRATEGY

This agenda item was introduced by Ms Johanna Diwa, IOC CD Secretariat.

She recalled that the Group, during their [2nd Session](#) (online meeting, October 2020), decided to continue the Inter- sessional Task Team to start work to identify CD requirements of Member States in relation to the IOC CD strategy but with updated terms of reference. The Group undertook online consultations and agreed on the revised terms of reference, as follows:

(Annex I) Revised terms of reference of the inter-sessional GE-CD Task Team related to the Capacity Development (CD) requirements of Member States, focusing on SIDS, LDCs and the Member States that are currently not member of any of the 3 sub-commissions and IOCINDIO, and taking into account the Decade priorities to specifically:

1. Provide support and assistance for the biannual CD Needs Assessment Survey
2. Liaise with key organisations and initiatives related to the implementation of CD activities including:
 - GOSR Secretariat
 - UN Decade Secretariat
 - Representative organisations of Pacific SIDs regarding the proposed PSIDS conference
3. Provide advice and support to the Ocean Info Hub (OIH)

Considering the needs of “SIDS, LDCs and the Member States that are currently not member of any of the 3 Sub-Commissions and IOCINDIO”, and taking into account the Decade preparations, the 2nd CD Needs Assessment Survey looked at the CD needs of SIDS and Member States not currently members of the 3 sub-commissions and IOCINDIO, tagged as ‘Others’ through regional analysis of the responses from these countries. While there were no responses from the national representatives, such as IOC focal points and CD focal points of countries from SIDS, inputs from practitioner groups responding to the survey on a personal capacity were included in the analysis in an attempt to understand their top critical CD needs.

A regional analysis also included the perspectives of respondents who accomplished the survey on official capacity as representatives of their organization/company/institution, as well as individual practitioners who filled in the survey on personal capacity. The analysis involved the four groups of capacity of the respondents - the IOC focal point, the CD focal point, representatives of organizations, and personal capacity.

In order to determine regional capacity development requirements, a regional reporting of the results was presented for the following regions: AFRICA, LAC, WESTPAC, P-SIDS and Others. Even though most of the P-SIDS countries also belong to WESTPAC, they were grouped separately to be able to look at their specific needs. Unfortunately, due to low responses from P-SIDS group, it was not possible to generate statistically significant findings that were representative of the group. The rest were under ‘Others’.

The weighted average was summarized and presented in four tables. The first table included IOC national focal point group, the second table included CD focal point group, the 3rd table included responses from representatives of organization/company/institution and the 4th table included responses based on personal capacity. In view of the low respondent numbers for the other three groups, it was difficult to draw general findings from the results, with the last group on personal capacity having more significant respondent numbers (except for P-SIDS).

The comparison of the four tables gave an overview on the rankings across the four groups. It offered some insights on the perspectives not only of the leadership (focal points) but also those who were from practitioners ‘groups belonging in other institutions/organizations/company and attempted to identify any disconnect between these

groups. The highest ranked were highlighted in darkest green, while the lowest were highlighted in red.

In terms of the most critical capacity development needs to build ocean science capacity, the top ranked CD needs from SIDS country group (Figure 2), other than those generally ranked highest across the regions and groups, included *Access to current literature and legal frameworks, regulation and enforcement*.

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=6)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=6)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=6)	AFRICA (n=86)	LAC (n=127)	OTHERS (n=24)	WESTPA C (n=69)	P-SIDS (n=3)
Qualified ocean science professionals	4.20	3.43	3.60	3.00		4.25	3.00	4.00	5.00		4.26	4.04	4.29	4.25		4.23	4.01	4.29	4.13	4.67
Research vessels and inshore boats	4.30	3.29	3.20	3.50		4.00	3.00	4.00	5.00		4.22	4.42	4.00	4.25		4.14	4.30	4.33	4.07	4.67
Ocean observation equipment (buoys, AUVs, tide-gauges etc.)	4.30	4.14	3.80	3.50		4.50	4.25	5.00	4.00		4.26	4.54	4.29	4.35		4.47	4.54	4.54	4.16	4.67
Ocean science sampling equipment and instrumentation	4.50	3.86	3.40	3.00		4.50	3.75	4.00	4.00		4.17	4.62	3.57	4.20		4.36	4.45	4.46	4.16	3.67
Laboratory equipment and facilities	4.40	4.14	3.60	4.00		4.25	3.25	2.00	5.00		4.39	4.50	3.71	4.15		4.31	4.31	4.21	4.16	4.33
Access to remotely sensed satellite data	4.30	3.86	4.20	3.00		4.25	2.75	4.00	5.00		4.39	4.04	3.86	4.30		4.21	3.99	3.75	3.90	3.67
Access to regional and/or global data	4.30	3.86	4.00	3.00		4.25	2.75	5.00	5.00		4.35	4.04	3.57	4.15		4.09	4.18	4.04	4.06	3.67
Digital infrastructure (computers, software etc.)	4.00	4.00	3.20	3.00		3.50	3.75	5.00	5.00		4.39	3.92	3.29	4.10		4.07	3.91	3.75	4.00	3.00
Internet connectivity	4.40	3.71	3.40	2.50		3.25	3.00	5.00	5.00		4.17	3.85	3.00	4.30		3.93	3.64	3.04	3.78	3.67
Access to high power computing	4.00	4.43	3.40	1.80		3.25	4.50	5.00	4.00		4.04	3.62	4.00	3.95		3.87	3.85	3.04	3.91	3.33
Access to current scientific literature	4.20	3.57	3.00	2.50		4.00	3.50	5.00	4.00		4.35	4.00	3.43	4.10		3.87	3.64	3.33	3.80	4.67
Membership/involvement in international ocean research	3.80	3.71	3.60	3.00		3.75	2.25	4.00	4.00		4.43	3.88	4.14	4.15		3.97	4.01	3.75	4.03	3.67
Strengthened international partnerships and regional networks for development of national ocean research policy	4.30	4.00	3.60	3.00		3.75	3.50	5.00	5.00		4.48	4.31	4.43	4.50		4.28	4.29	4.13	4.23	4.00
Legal frameworks, regulation and enforcement	4.20	4.00	3.60	3.00		4.50	3.75	4.00	4.00		4.35	4.35	3.43	4.25		4.08	4.42	3.96	4.26	4.33
Increased awareness, ocean literacy and public outreach	4.00	4.29	4.20	4.00		3.75	4.75	4.00	4.00		4.13	4.04	3.43	4.10		3.93	4.31	3.88	4.17	4.00
Gender equality	4.20	3.86	3.20	2.00		3.75	3.00	5.00	5.00		3.87	3.38	3.00	3.65		3.69	3.85	2.67	3.48	4.00
Funding and investment in ocean science	4.40	4.29	4.20	4.00		4.50	4.25	5.00	5.00		4.61	4.62	4.43	4.20		4.52	4.74	4.46	4.38	4.67
CD to facilitate stakeholder engagement	4.30	4.29	3.80	2.00		4.25	4.50	5.00	5.00		3.83	3.81	2.71	3.95		3.74	3.93	3.33	3.97	4.00
Access to communities of practice	4.30	4.29	4.20	4.00		4.25	4.50	4.00	5.00		3.91	4.15	3.29	4.10		3.85	4.04	3.63	4.16	3.00

Figure 2. Most critical capacity development needs

In terms of developing capacity in human resources, the top ranked human resources related needs from SIDS country group (Figure 3), other than those generally ranked highest across the regions and groups, included *Higher education degree programmes in ocean science and Management training for senior researchers and heads of institutions*.

In terms of increased access to physical infrastructure, the top ranked human resources related needs from SIDS country group (Figure 4), other than those generally ranked highest across the regions and groups, included *Organizing shared access to regional scientific research infrastructure*.

In terms of strengthened coordination with global, regional, or sub-regional IOC communities and local networks (Figure 5), SIDS shared high ranking across regions and groups on

reinforced budgeting of regional sub-commissions and establishing an effective coordination and communication mechanism.

In terms of development of ocean research policies in support of sustainable development (Figure 6), assistance with the development of national marine science management, was ranked highest by the SIDS group.

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=69)	P-SIDS (n=3)
Higher education degree (BSc-PhD) programmes in ocean science within	3.70	3.71	3.20	3.50		4.50	2.25	5.00	5.00		3.78	3.81	2.86	4.05		4.14	3.69	3.88	3.94	5.00
Advanced professional development training courses (specific short courses,	4.00	3.71	3.60	3.00		4.50	2.75	5.00	5.00		4.48	4.38	3.86	4.50		4.30	4.30	4.38	4.19	4.33
Continuous professional development throughout your career	3.90	4.00	3.40	4.00		4.25	3.75	5.00	4.00		4.26	4.31	4.43	4.40		4.24	4.26	4.08	4.26	4.67
Management training for senior researchers and heads of institution	3.80	4.00	3.80	4.00		4.00	3.75	5.00	4.00		4.26	3.96	4.00	4.05		4.06	3.97	3.88	3.77	4.67
Establishment of consortia of higher education in your country or region	3.70	3.29	2.60	4.00		3.75	2.50	4.00	4.00		4.22	3.81	2.57	3.95		3.86	3.86	3.58	3.72	4.00
Increased collaboration with UNESCO Chairs and IOC	4.20	4.29	3.40	3.50		4.75	3.75	4.00	5.00		4.26	4.27	4.00	4.30		4.02	4.27	3.83	4.16	3.67
Establishment of an internship/fellowship programme	4.00	3.86	4.00	4.00		5.00	3.25	4.00	4.00		4.17	4.58	4.43	4.15		4.17	4.30	3.96	4.33	5.00
Access to on-board, research vessel-based training	4.00	3.86	3.80	4.50		4.75	3.25	4.00	5.00		4.48	4.42	3.86	4.15		4.07	4.29	4.04	4.33	3.67
Establishment of a visiting lecturer programme	3.60	4.29	2.80	4.00		3.75	4.00	4.00	5.00		4.04	3.85	4.14	4.15		3.59	4.08	4.00	3.94	4.67
Establishment of regional training (and research) centres relevant to the IOC	3.50	3.71	3.60	3.00		4.25	2.75	5.00	5.00		4.30	4.00	3.57	4.25		3.93	4.23	3.92	4.01	4.00
Establishment of a mentoring programme	4.10	3.43	3.40	4.50		4.50	1.75	4.00	5.00		4.30	4.00	3.57	4.25		3.97	3.98	3.75	4.10	3.67
Development of IOC alumni networks	4.10	3.14	3.80	4.50		3.50	1.75	4.00	5.00		4.09	3.81	3.00	4.20		3.59	3.83	3.17	3.88	3.67
Establishment of "young scientist" awards	4.10	4.14	3.80	4.00		3.25	4.50	4.00	4.00		4.09	4.12	3.71	3.70		3.87	3.88	3.75	3.83	4.33
Promoting gender equality and participation of women in ocean	3.90	3.71	3.00	3.00		4.00	2.50	5.00	4.00		3.96	3.96	3.00	3.95		3.98	3.91	2.88	3.54	4.00
Sharing of training materials	3.90	3.71	3.60	4.50		3.50	3.75	5.00	5.00		4.00	4.27	3.86	4.30		4.08	4.07	3.88	4.09	3.67
Establishment of a travel grant "fund"	4.00	3.71	3.60	4.50		4.00	3.50	5.00	5.00		4.43	4.50	3.71	4.45		4.23	4.17	3.88	4.42	3.00

Figure 3. Human resources development

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=69)	P-SIDS (n=3)
Establishment and maintenance of a register of regional scientific research	4.00	4.14	3.20	4.00		3.75	4.00	4.00	5.00		3.91	4.23	3.57	4.00		4.03	4.31	3.83	4.10	4.67
Organizing shared access to regional scientific research infrastructure	4.20	3.71	3.80	5.00		4.00	4.00	4.00	5.00		4.17	4.38	3.57	4.10		4.02	4.24	3.79	4.16	5.00
Provision of new equipment by donors to your institution/organization	4.20	4.14	4.00	1.50		3.50	4.25	5.00	4.00		4.13	4.62	3.71	3.85		4.00	4.19	3.75	4.19	4.67
Provision of used equipment by donors or other institutions	3.50	3.43	2.60	1.50		2.75	2.75	2.00	4.00		3.91	4.23	2.71	3.55		3.77	3.80	3.50	3.75	4.33
Organizing low-cost access to spare parts for equipment	4.30	4.14	3.40	3.50		3.75	4.00	5.00	5.00		4.17	4.50	3.29	3.95		3.66	4.15	3.38	3.97	4.33
Training on the use and maintenance of physical infrastructure and	4.10	3.57	3.80	2.00		3.75	4.00	5.00	5.00		4.17	4.69	3.86	4.20		4.37	4.47	4.08	4.14	5.00
Access to best practices on the use and maintenance of physical infrastructure	3.70	3.00	2.60	2.50		4.00	4.00	5.00	5.00		4.13	4.69	4.29	3.90		4.24	4.38	4.08	4.16	5.00

Figure 4. Physical infrastructure

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=69)	P-SIDS (n=3)
Improved staffing of secretariat of regional sub-commissions	4.00	3.29	3.00	2.50		4.50	2.50	4.00	5.00		3.57	3.38	4.14	4.10		3.21	3.39	3.08	3.88	3.00
Reinforced budgeting of regional sub-commissions	4.20	2.71	3.80	4.00		4.50	2.50	4.00	5.00		4.00	4.04	4.14	4.00		3.58	3.52	3.21	3.70	4.00
Establishing an effective coordination and communication mechanism	3.90	3.14	3.80	4.50		4.50	2.75	5.00	5.00		4.48	5.00	5.00	4.40		3.74	4.02	3.46	3.91	3.67
Establishing an effective coordination and communication mechanism	3.90	3.14	3.80	4.50		4.25	2.75	5.00	4.00		3.96	4.38	3.43	4.15		3.77	3.87	3.33	4.03	4.00
Establishing an effective coordination and communication mechanism	3.70	3.57	3.80	4.50		4.25	2.75	5.00	4.00		3.70	3.92	3.57	3.75		3.55	3.63	3.54	3.78	4.00

Figure 5. Strengthened coordination with global, regional, or sub-regional IOC communities and local networks

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=69)	P-SIDS (n=3)
Sharing of information on existing ocean research priorities among	4.10	4.43	4.40	5.00		4.50	4.75	5.00	4.00		4.48	4.35	4.14	4.40		3.94	4.35	4.13	4.30	4.67
Assistance with the development of national marine science management	4.30	3.14	4.20	4.00		4.25	3.75	5.00	5.00		4.52	4.35	3.86	4.00		3.97	4.26	3.79	4.13	5.00
Support in methodologies for co-design processes to joint development of	4.10	4.29	4.00	4.00		3.75	4.50	5.00	5.00		3.96	4.35	4.00	4.05		3.64	4.17	3.67	4.26	4.67

Figure 6. Ocean research policies

In terms of increasing visibility and awareness of ocean research (Figure 7), *support for communicating ocean science research to policy makers* was ranked highest by SIDS country groups, which was also the top CD needs identified across all regions and groups.

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=69)	P-SIDS (n=3)
Support for development of effective public communication in ocean	4.10	3.57	4.20	4.00		4.75	4.25	4.00	4.00		3.96	4.35	3.86	4.70		4.05	4.51	4.08	4.33	4.33
Support for communicating ocean science research to policy makers	4.30	4.29	4.80	4.00		4.50	5.00	5.00	5.00		4.13	4.27	4.14	4.60		4.16	4.67	3.88	4.38	5.00
Development of an IOC ocean literacy 'community of practice' to share	4.10	4.43	3.80	4.50		4.50	5.00	4.00	4.00		4.09	4.08	4.43	4.10		4.00	4.23	3.88	4.16	4.33

Figure 7. Increasing visibility and awareness

In terms of mobilizing sustained (long-term) resources (Figure 8), *financial resource mobilization* was considered most important by SIDS group.

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=69)	P-SIDS (n=3)
Assistance in fostering partnerships to increase in-kind support opportunities	3.90	4.29	4.20	5.00		4.25	4.50	5.00	4.00		4.09	3.85	3.86	4.20		3.81	4.09	2.92	4.10	3.67
Assistance in financial resource mobilisation from Member States,	4.40	4.43	4.40	5.00		4.25	4.50	5.00	4.00		3.78	4.23	4.29	4.30		4.02	4.18	3.25	4.28	4.33

Figure 8. Mobilizing sustained (long-term) resources

In the context of the Ocean Decade Challenges (Figure 9), the personal capacity groups across regions, including SIDS, gave high ranking to Challenge 4: Generate knowledge, support innovation, and develop solutions for equitable and sustainable development of the ocean economy under changing environmental, social and climate conditions.

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=89)	P-SIDS (n=3)
CHALLENGE 1: Understand and map land and sea-based sources of	4.40	4.29	4.40	4.00		3.75	4.25	4.00	5.00		4.17	4.38	3.86	4.30		4.21	4.33	4.00	4.25	4.33
CHALLENGE 2: Understand the effects of multiple stressors on ocean	4.30	4.29	4.20	4.00		3.75	4.25	5.00	5.00		4.13	4.38	3.86	4.45		4.42	4.62	4.21	4.35	4.67
CHALLENGE 3: Generate knowledge, support innovation, and develop	4.20	4.29	4.00	4.50		4.25	4.50	5.00	5.00		4.26	4.58	3.71	4.30		4.21	4.36	3.79	4.22	4.33
CHALLENGE 4: Generate knowledge, support innovation, and develop	4.20	4.43	4.00	4.50		4.25	4.75	5.00	5.00		4.22	4.38	3.71	4.40		4.81	4.74	4.13	4.72	5.00
CHALLENGE 5: Enhance understanding of the ocean-climate nexus and	4.30	4.57	3.60	5.00		4.50	4.75	4.00	4.00		4.04	4.31	4.57	4.20		4.19	4.42	3.79	4.20	4.00
CHALLENGE 6: Enhance multi-hazard early warning services for all	4.40	4.43	4.00	4.00		3.75	4.50	5.00	4.00		4.17	4.54	3.57	4.75		4.22	4.54	3.83	4.20	4.00
CHALLENGE 7: Ensure a sustainable ocean observing system across all	4.20	4.43	4.40	4.50		4.25	4.75	5.00	5.00		4.04	4.46	4.14	4.20		4.03	4.51	4.13	4.25	4.67
CHALLENGE 8: Through multi-stakeholder collaboration, develop a	3.80	4.43	3.60	4.50		3.75	4.50	4.00	5.00		4.30	4.50	4.14	4.35		4.02	4.36	3.54	4.23	3.67
CHALLENGE 9: Ensure comprehensive capacity development and equitable	3.90	4.57	3.20	4.00		4.25	4.75	5.00	5.00		4.30	4.62	3.14	4.25		4.28	4.42	3.83	4.25	4.67
CHALLENGE 10: Ensure that the multiple values and services of the	4.10	4.43	3.80	4.50		4.25	4.50	4.00	4.00		4.17	4.27	3.00	4.30		4.06	4.54	3.83	4.09	4.67

Figure 9. Decade Challenges

As for the Ocean Decade objectives, all the objectives were considered highly relevant, by the SIDS group.

	IOC Focal Points					CD Focal Points					Representatives Capacity					Personal Capacity				
	AFRICA (n=10)	LAC (n=7)	OTHERS (n=5)	WEST PAC (n=2)	PSIDS (n=0)	AFRICA (n=4)	LAC (n=4)	OTHERS (n=1)	WEST PAC (n=1)	PSIDS (n=0)	AFRICA (n=23)	LAC (n=26)	OTHERS (n=7)	WESTPA C (n=20)	PSIDS (n=0)	AFRICA (n=86)	LAC (n=137)	OTHERS (n=24)	WESTPA C (n=89)	P-SIDS (n=3)
OBJECTIVE 1: Identify required knowledge for sustainable	4.10	4.29	3.60	4.00		4.25	4.00	5.00	5.00		4.52	4.50	4.29	4.30		4.14	4.36	3.83	4.16	4.67
OBJECTIVE 2: Build capacity and generate comprehensive knowledge	4.00	4.14	3.80	4.50		4.25	4.75	4.00	5.00		4.22	4.69	4.14	4.50		4.23	4.43	3.71	4.16	4.67
OBJECTIVE 3: Increase the use of ocean knowledge and understanding, and	4.10	4.43	4.40	4.50		4.50	4.75	5.00	5.00		4.48	4.66	4.29	4.45		4.14	4.60	4.13	4.33	4.67

Figure 10. Decade Objectives

Ms. Diwa stated that due to the relatively small sample sizes care needed to be taken when interpreting the results and making assumptions based on the data presented. Unfortunately, due to low responses from SIDS group, it was not possible to generate statistically significant findings that were representative of the group. The attempt to consider the needs of these groups of countries aimed to get more information from the responses, which as demonstrated here was insufficient to be representative of the group. Further, the countries grouped under ‘Others’ were not separated into respective regions, something that should be considered in the analysis in the next survey.

Ms Diwa concluded her presentation with an invitation to the GE-CD to provide advice how to increase the engagement of “SIDS, LDCs and the Member States that are currently not member of any of the 3 sub-commissions and IOCINDIO” in the next CD needs assessment survey for 2022-2023.

Aside from the survey, OIH was the only activity left that requires guidance from the Task Team. With this, the Group was asked to consider that the Task Team be abolished so the Group in general can coordinate the necessary activities with the Secretariat.

Ms Ann-Katrien Lescrauwaet informed the meeting that the outcomes of the survey were used as a component for the CD strategy for the Baltic and North Sea Strategic Research Innovation Agenda. In spite of the gaps (in country responses and in thematic areas) the survey was also used to promote and engage the Focal points to engage in responding to the survey and use it for strategic purposes.

Mr Bradford Brown noted the need to ensure that survey responses were representative of institutions and countries rather than only individuals and how past CD activities have been “agents of change”.

Ms Lescauwet inquired how a link will be established with the GOSR. It was pointed out that the link to the GOSR was included in the workplan for the next intersessional period to be discussed under Agenda item 7.

The Group **decided** that in the next CD needs assessment survey, separate reporting should be provided for SIDS, LDCs and non-RSB member states per region.

The Group **decided** to abolish the Task Team on CD requirements of Member States in relation to the IOC CD Strategy.

The Group **agreed** to work with the Secretariat on necessary activities related to the 3rd CD needs assessment.

2.2 INSTRUCTIONS FROM THE 31ST SESSION OF THE IOC ASSEMBLY (2021) AND THEIR FOLLOW-UP ACTIONS

2.2.1 REVISION OF THE TERMS OF REFERENCE OF THE GE-CD

This agenda item was introduced by Mr Ariel Troisi, co-Chair of the Group.

Mr Troisi recalled that the GE-CD Co-Chair, Mr. Alan Evans, reported on the work of the GE-CD and its Task Teams to the 31st Session of the IOC Assembly. The Assembly was informed that the second session of the GE-CD had taken place on 26 October 2020 as an online meeting. The Group decided to establish a GE-CD Task Team to identify what changes may be needed in the current IOC CD strategy (2015–2021) and submitted a report for consideration by the 31st Session of the IOC Assembly (2021). The report of the Task Team was further discussed under agenda item 6.1.

Mr. Troisi presented the actions and decisions adopted by the Assembly through IOC Decision A-31/3.5.3, which includes the revised terms of reference of the GE-CD. He referred that the next steps regarding the revision of the IOC CD Strategy will be further discussed under agenda items 6.2 and 6.3.

IOC Decision A-31/3.5.3

Revision of the IOC Capacity Development Strategy

The Assembly,

Recognizing the importance of Capacity Development as one of the six functions of the IOC Medium-Term Strategy (2014–2021), 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 [Resolution XXVIII-2](#) by which it adopted the IOC Capacity Development Strategy (2015–2021) at its 28th session,

Having examined the Report of the GE-CD Task Team related to the revision of the IOC Capacity Development Strategy 2015–2021,

Decides to extend the current IOC Capacity Development Strategy until July 2023,

Decides also to revise the Terms of Reference of the IOC Group of Experts on Capacity Development as follows:

- i) assist global and regional programmes with the implementation of capacity development needs assessments in a consistent manner;
- ii) 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;
- iii) provide advice to global and regional programmes on relevant methods and tools to improve the quality and impact of CD efforts;
- iv) repeat the CD survey at regular intervals in 2022 and biannually thereafter, possibly including CD implementation impact monitoring/metrics, also taking into account other methods such as regional reviews, science conferences etc.;
- v) ensure coordination of the work of the Group of Experts and its Task Teams with GOSR and CD aspects of the UN Decade of Ocean Science for Sustainable Development;
- vi) advise the Assembly on the Transfer of Marine Technology Clearing House Mechanism (CHM) as requested by the *IOC Criteria and Guidelines on the Transfer of Marine Technology (IOC/INF-1203)*, making use, to the largest extent possible, of existing data and information systems and building upon the Ocean InfoHub project (2020–2023);
- vii) revise the IOC Capacity Development Strategy and prepare a proposal for submission to the IOC Assembly at its 32nd Session;
- viii) prepare a proposal to promote visibility and reach of the revised IOC CD Strategy so that its target audience will read through and appreciate the document as a guide in implementing capacity development activities for submission and submit it to the IOC Assembly at its 32nd Session;

Calls on IOC's regional subsidiary bodies as well as regional components of global programmes to:

- (i) promote contributions to the CD survey;

- (ii) identify CD efforts of other organizations and seek complementary cooperation;
- (iii) link with other global, regional and national processes and strengthen the relationships with philanthropic, private partnerships and other regional organizations;

Invites Member States to:

- (i) participate actively in the co-development of IOC capacity development by designating focal points for IOC capacity development, and by nominating members of the IOC Group of Experts on Capacity Development;
- (ii) participate actively in IOC programmes, projects and steering groups;
- (iii) involve universities in IOC surveys on capacity development needs;
- (iv) contribute to IOC capacity development activities through financial and/or in-kind contributions;

Agrees that the regular budget for these activities will be identified as part of the Resolution on Governance, Programming and Budgeting Matters of the Commission (IOC Resolution A-31/2).

The Group **noted** the revised Terms of Reference of the IOC Group of Experts on Capacity Development and **took** these into consideration in further discussions and work plan.

3. RESULTS OF THE 2ND CD NEEDS ASSESSMENT SURVEY (2020-2021)

3.1 OVERVIEW

This agenda item was introduced by Ms Johanna Diwa.

She recalled that as instructed by the 30th Session of the IOC Assembly (2019) the IOC GE-CD implemented the 2020 survey. A revised version of the first CD Needs Assessment Survey was developed and adopted by correspondence in August 2020. The online survey was launched on 1 September 2020 and closed in February 2021. The 2020 Capacity Development Needs Assessment Survey, organised by the IOC Group of Experts on Capacity Development, was designed to assess the capacity development requirements of UNESCO IOC Member States.

The CD Needs Assessment survey consisted of 2 main parts: the first was for personal information of the respondents, while the second part contained relevant question sets for specific stakeholder groups. All respondents were asked to fill in Section 1 for personal information and profile of respondents. Question 4 asked the respondents to indicate the capacity in which they were responding to the survey and Question 10 asked them to identify their relevant stakeholder group, which led them to the question sets, depending on the

stakeholder group they identified with. Section 2 contained questions focusing on capacity development based largely on the IOC CD Strategy framework of outputs and activities, with 22 questions on capacity development needs and requirements, including questions that relate to the Decade of Ocean Science and SDG 14. Two subsets of 23 questions (2a) and 12 questions (2b) were included for IOC focal points and IOC CD focal points, respectively. Sections 3 to 5 contained questions for other stakeholder groups such as government officials, policy makers, private and industry, and environmental NGOs.

In total, 1005 responses were received from 118 countries as. The gender breakdown was 61% male, 37% women, and the rest preferred not to say. 72% of the respondents answered in their personal capacity, while 21% were official representatives; 4% were IOC focal points, 1% were IOC CD Focal Points and 2% others. As for the stakeholder groups breakdown, 30% of the respondents were ocean researchers and research service providers, 23% were Higher Education Institutions and Learning Service Providers academic staff, 16% national government officials, 10% students, while the rest of the groups were below 10% (local government officials, policy-makers, industry, private sector, NGOs).

An overall analysis was conducted for each stakeholder group for all capacity groups. The data presented on ranking of top CD needs were based on weighted average. All the responses were included in the computation to reflect representation of the respondent's perspectives, including items that were given low rankings. To get a weighted average the number that gave the highest rank (e.g. essential) was multiplied times 5 and added to the number that gave a second highest (e.g. very important) multiplied times 4, and so on, divided by the total responses. However, due to the relatively small sample sizes care must therefore be taken when interpreting the results and making assumptions based on the data presented. What can be logically drawn from the analysis was the strong expression of a need for capacity enhancement all across the board, as indicated by the few scores below 4.0.

The results of the regional analysis were presented under agenda item 2.1.2.

Country summary reports were also made available for countries with 10 or more responses in addition to the IOC Focal Points (Argentina, Chile, Colombia, India, Kenya, Mexico, Nigeria). The country reports summarized the responses from their respective IOC focal points, CD focal points, practitioners who filled in the survey in professional capacity, and practitioners who filled in the survey on personal capacity.

In terms of the top CD needs identified by IOC focal points when asked which of the CD needs are the most critical that currently are not available in their countries, the top CD needs were:

1. Funding and investment
2. Access to communities of practice
3. Increased awareness, ocean literacy and public outreach
4. Ocean observation equipment
5. Access to remotely sensed satellite data

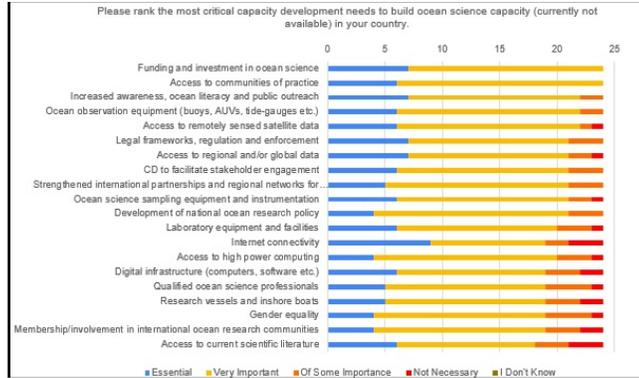


Figure 11. Overall analysis on top CD needs

On questions related to the UN Decade of Ocean Science, here we can see in the yellow box that Challenge 7 (Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely, and actionable data and information to all users) and 5 (Generate knowledge, support innovation, and develop solutions for equitable and sustainable development of the ocean economy under changing environmental, social and climate conditions) were top challenges where CD needs are greatest.

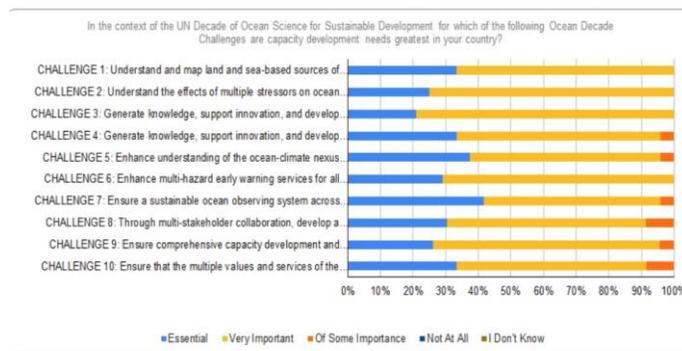


Figure 12. Overall analysis on Decade Challenges

And similar question on which Decade objectives are capdev greatest in your country resulted to objective 3 (Increase the use of ocean knowledge and understanding, and develop capacity to contribute to sustainable development solutions which was ranked consistently as greatest capacity development needs across regions and groups.

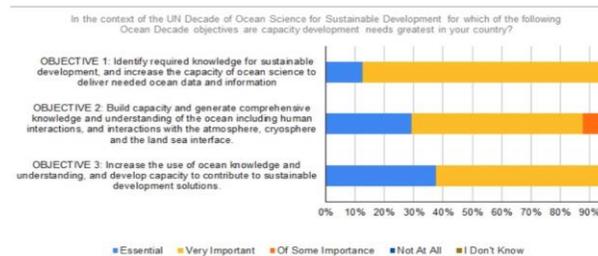


Figure 13. Overall analysis on Decade Objectives

On SDG14, 96% of the IOC focal points confirmed that SDG14 is a national priority in their countries. 87% believed that they have significant and partial capacity to achieve SDG 14 while 13% believed their capacity is low. When asked which aspect of capacity is lacking to achieve SDG 14, 100% of the responses pointed to 'capacity to translate science to policy'.

On national CD strategy and needs assessment, 54% of the IOC focal points indicated the absence of a national ocean science strategy while 63% reported that there has not been any capacity needs assessment conducted in their country.

Two questions regarding the impact of Covid19 to the implementation and support to IOC CD activities yielded 61% answered negative impact on overall contribution in IOC Capacity Development activities while 70% answered similar negative impact on support to IOC CD activities.

Almost 75% of respondents positively rated marine national coordination on marine research while 26% claimed it was poor. More than half (57%) answered that marine scientific research is significantly linked to policy needs in their countries while 4% said there's no link at all. On the question whether the output of graduates is linked to human resources needs of the national research institutions, responses were almost halved to positive (50%) and negative (45%). 48% responded that there is an active policy to promote the use of local marine research/monitoring/management expertise in the private sector while 43% said there was none.

64% of respondents from government officials group indicated that national plan or institutional mechanisms are in place to support the development of ocean science capacity in their country. About 80 to 90% agreed that research institutions, followed by international organizations and regional organizations were some non-governmental stakeholders that are mostly involved in decision- making processes to come up with action plans to implement ocean policies. Lastly, when asked about the most frequent obstacles to implementing ocean related policy, they identified *limited financial resources*, *lack of technical capacities* and *lack of access to data and information*.

3.2 FOLLOW-UP ACTIONS

The detailed results of the survey, as well as detailed responses from countries, were also made available online at <https://surveys.ioc-cd.org>. The site was launched on 30 April 2021, through [Circular Letter 2846](#). The Circular Letter called for recipients to communicate the survey to a broader circle of potential respondents.

An information document, [IOC/INF-1403](#), was published on 28 June 2021 as a summary report of the survey outcomes, which were expected to contribute to assessing the capacity development needs in ocean science related issues and addressing capacity needs, including those related to the UN Decade of Ocean Science for Sustainable Development 2021-2030.

Given that, a key focus of the survey was to specifically assess the capacity needs requirements in each region, the analysis conducted included a regional reporting to enable comparisons with the overall results, as presented under agenda item 2.1.2. Considering the relevance of presenting the results that show the priorities of the IOC Sub-Commissions and Committee and also to inform the potential revision of the IOC CD strategy, RSBs were encouraged to consider these results when drafting their CD work plans and activities based on priorities identified.

3.3 RECOMMENDATIONS FOR THE 3RD CD NEEDS ASSESSMENT SURVEY (2022-2023)

Ms. Diwa presented the following recommendations for the 3rd CD Needs Assessment Survey:

- i. Encourage Member States to nominate IOC National Focal Points for Capacity Development who will be responsible for the coordination of their country's participation in IOC's CD activities, such as the circulation and implementation of the survey in their respective countries and networks of stakeholders;
- ii. Make arrangements to reach more respondents to contribute to the survey so as to generate statistically representative results, especially from SIDS;
- iii. Better coordination with IOC focal points is encouraged, based on recent experience of multiple bounced emails or undelivered correspondences due to outdated contact information and list of current assignments;
- iv. While it is important to include similar questions, the number of questions can be synthesized and reduced so as not to overwhelm potential respondents;
- v. The targeted survey for each stakeholder group can also be separated into respective survey links, which would make the relevant question set more directly accessible, and less complicated to manage especially during the analysis;
- vi. Involve networks of various stakeholder groups in reaching out to wider group of respondents.

She concluded the presentation by inviting the Group to work closely with the Secretariat in the preparation of the 3rd CD needs assessment survey for 2022-2023.

Mr Alan Evans inquired whether the lack of responses from SIDS referred to all SIDS or just P-SIDS. Ms Diwa responded that this applied to all SIDS.

Mr Kokiattiwong, representing the IOC/WESTPAC Secretariat, inquired if the survey also addressed countries that are not included in IOC RSBs. Ms Diwa responded that the 2nd survey used the UN regions. She also expressed the desire to receive feedback from the RSBs with a view to further improve the survey.

Mr Ahanhanzo referred to the individual filling of forms and how we can improve the representativeness of response so they express national needs. Mr Troisi stated that over 1000 responses were received but the majority (70%) was in an individual capacity. The results were made public so Member States can discuss these and coordinate better for the next survey round. He also invited Secretariats of RSBs to assist with obtaining better response from the official contacts in their respective regions.

The Group **agreed** to work closely with the Secretariat in the preparation of the 3rd CD needs assessment survey for 2022-2023.

The Group **urged** all IOC Member States to designate IOC CD Focal Points to assist in implementation of CD activities, such as the CD needs assessment survey, and instructed the Secretariat to re-issue a Circular Letter for this purpose and also referring to the A-31 Decision which calls also on IOC regional components of global programmes to (i) promote contributions to the CD survey.

The Group **invited** the regional subsidiary bodies and all IOC programmes to promote the survey and **to consider the results** when drafting their CD work plans and activities.

4. IMPLEMENTATION OF THE IOC CD STRATEGY BY GLOBAL AND REGIONAL PROGRAMMES

Under this agenda item representatives of global and regional IOC programmes and projects were invited to provide information on how the IOC CD strategy was implemented within their respective work plans.

4.1 GLOBAL PROGRAMMES AND PROJECTS

4.1.1 OTGA

This agenda item was introduced by Ms. Claudia Delgado, OTGA Project Manager.

She recalled that the IOC Capacity Development Strategy was structured around 6 main outputs. The OTGA fully supports the implementation of the IOC Capacity Development Strategy, mainly (although not exclusively) by focusing in to Output 1, Human Resources. It

does so by specifically addressing, for example, Continuous Professional Development, namely by

1. Promoting and assisting with the organisation of training courses, workshops and summer schools relevant to the IOC mandate
2. Promoting and assisting with the establishment of training and research centres
3. Promoting and facilitating the sharing of training resources

The OTGA focuses specifically on developing and delivering training, namely by leveraging the regional expertise already available and empowering regional institutions on how to deliver training.

The second phase of the OceanTeacher Global Academy Project is a 3-year project, funded by the Government of Flanders, Belgium.

Its main goals are to:

- 1) Develop a portfolio of packaged courses (related to the needs of IOC and other partners)
- 2) Deliver courses online and/or blended learning, on demand

The e-Learning Platform is the backbone of OTGA. As a Learning Management System, it facilitates Face to face learning, blended and online learning.

The platform allows the:

- Sharing content and learning between organisations / stakeholders
- Co-creating content and knowledge
- Recognition for the organisations as well as course developers
- Widely available (learn anywhere, anytime)
- Enables creation of a community of practitioners and learner collaboration

Another essential component of the OTGA approach is its global network of Training Centres. OTGA works in partnership with the IOC Member States and its institutions, and it's now a network of 17 Regional and Specialised Training Centres. These RTCs and STCs play an essential role, as they help tailoring courses to the regional specific needs and they host the face-to-face courses in the languages that are relevant to the Regions and focus on relevant regional needs and topics.

The current phase of OTGA started in April 2020, in the midst of the COVID pandemic. Given its continued impact all training activities have been done online only, mainly as synchronous courses. With the support of many active Training centres, the OTGA was able to organise 32 online, synchronous courses, of which 6 were adapted to self paced mode afterwards. OTGA has also hosted another 5 courses with external partners. Altogether, over 3250 people applied to attend one of the online synchronous training courses, and so far, 700 people have successfully completed a course. Course languages included English, Spanish and Portuguese.

The OTGA strives to deliver the best quality training possible. To this aim, OTGA established a quality management system that supports the design and delivery of the training Services. The former ISO norm has been discontinued and we now need to comply with the new ISO 29993 on learning services outside formal education. Due to Covid it was not possible to organize the mandatory face to face external audit until now. The OTGA Secretariat is following up on this matter again and an external audit is now scheduled for 24-25 January 2022.

An important role for OTGA is to facilitate training for all IOC Programmes, including Ocean Decade specific topics. The RTC Belgium takes this task as a priority as part of its training workplan.

During 2021 the RTC Belgium has been working with the IOC Programmes in order to develop a number of self-paced courses in relevant topics. Four courses focusing on Tsunami Awareness, Ocean Acidification, Ocean Data Management and Ocean Best Practices are well underway and should be available in the first trimester of 2022 and will become part of the standard OTGA courses portfolio. These courses should then become the reference courses in these topics and should be translated into other languages, namely with the support of the OTGA RTCs and STCs and can be used also to support face to face and blended training once it is feasible to organise face to face courses. Thus, OTGA supports training activities of all IOC programmes, contributing not only to Function F, but ultimately, contributing to all IOC Functions as well as all IOC Sub commissions. In September 2021 the OTGA Secretariat submitted a proposal to become an Ocean Decade Project and this was successfully reviewed.

As part of the endorsed Ocean Decade Projects OTGA should get more visibility globally. Besides this, OTGA contributes to no less than 6 of the 17 SDGs as well as several international processes such as the

- Qingdao Declaration on the use of ICTs for education and lifelong learning
- Sendai Framework for Disaster Risk Reduction
- SIDS Accelerated Modalities of Action (SAMOA) Pathway

Although OceanTeacher primary focus is to deliver training related to the IOC programmes, OTGA collaborates with many other organisations, from UN organisations to Academia and NGOs. OTGA fosters collaborations beyond UNESCO/IOC to position itself as the training platform for ocean related topics within the UN and beyond. OTGA regularly organises joint courses or hosts or facilitates training courses for a number of other organisations.

The COVID19 pandemic triggered a fundamental change on how to look into and ensure that education and training does not stop. Almost 2 years after the first lockdowns, it is clear that blended learning formats, including the enhanced use of technology for training, are here to stay and should become the 'new-normal'. Of course, one cannot ignore the digital divide: not everyone has access to the necessary tools to online training, especially low-income students, nor that online training can fully replace face to face training. However, it is clear that we need to provide more opportunities for lifelong learning in order to reach all those who need it throughout their careers.

4.1.2 GOOS

This agenda item was introduced by Mairéad O'Donovan, Consultant, GOOS.

She provided an overview of Capacity Development in the GOOS 2030 Strategy. One of the strategic objectives was to develop capacity to ensure a broader range of beneficial stakeholder participation, as part of 'building for the future'. To achieve this objective collaboration and partnership within the GOOS structure is key, for example with GOOS Regional Alliances, National Focal Points, Expert Team on Operational Ocean Forecasting Systems, Observation Coordination Group networks, and the IODE-GOOS Ocean Best

Practices System. It's also recognised as essential that capacity development is approached in the broader context of the IOC and in cooperation with the other GOOS partners, i.e. WMO, UNEP and the International Science Council.

Within the GOOS implementation plan, updated in 2020 there are 10 actions outlined to advance capacity development. These are:

- 9.1 Organise global online **trainings on operational ocean monitoring and forecasting** system
- 9.2 Enhance existing and develop new **technical capacity building resources**
- 9.3 Implement ocean monitoring and forecasting system with the **engagement of Global Regional Alliances [GRAs]**
- 9.4 **Cross network** integrated capacity development
- 9.5 **Partner** with MBON, OBIS and WCMC on capacity exchange
- 9.6 Ocean monitoring and forecasting system centre **evaluation/assessment**
- 9.7 Capacity exchange materials and workshops for development or **expansion of Global Regional Alliances [GRAs]**
- 9.8 Market and capability building for EOY reporting in support of the global **biodiversity** framework indicators and assessments
- 9.9 **Co-development of biodiversity and marine habitat indicators** with the business community
- 9.10 Observing Together - GOOS **Ocean Decade** Programme

The Ocean Decade programmes of GOOS will play a key role in the coming years to progress the implementation of the GOOS strategy with regard to Capacity Development. GOOS has three Ocean Decade programmes all of which have capacity development embedded within their high level objectives to support capacity building at a local and regional level.

The Observing Together programme is founded on capacity development as it is a community-focussed programme that will provide enhanced support to both new and existing community-scale projects. It aims to leverage GOOS expertise and existing structures and then equally the increased local and regional involvement will contribute in return by providing observations and data to the global system. Co-design is a key part of the programme, and this will be supported by another of GOOS's Ocean Decade programmes Ocean Observing Co-Design. Overall, the Observing Together programme looks to strengthen connections, mutual understanding, and improved knowledge sharing between ocean observers and stakeholder communities. The ultimate goal is to make ocean observations readily available so that they can be applied to solve problems and inform decision-making, at all levels from community to global scale.

The Coast Predict programme focusses on moving forward the science to revolutionise Global Coastal Ocean observing and forecasting. The approach is to focus on the common features of the global coastal ocean to develop tools and systems that can be replicated locally in other places. So in terms of implementation this needs a very solid capacity development and co-design part to it and there is scope for significant synergy with the Observing Together programme.

The third of the GOOS Ocean Decade programmes supports further synergy. Ocean Observing Co-Design will develop the tools to help integrate end-user requirements into the development and improvement of the observing system. The engagement of community and

end-user stakeholders in the co-design of the ocean observing systems will be essential to develop a more **user-focused co-design process** that will create a fit-for-purpose, integrated and responsive observing system.

Capacity development focused only on ocean observations is unlikely to be sustainable, without partnership in the broader context of meeting stakeholder needs. This must involve the entire value chain of observations including data systems, forecasting systems, and science-to-policy or operational user interfaces. GOOS believes that within the IOC there is untapped opportunity to engage down this value chain with a focus on capacity development, and we look forward to the development of the new strategy, and being an actor in its implementation.

4.1.3 OCEAN SCIENCE

This agenda item was introduced by Salvatore Arico, Head of the Ocean Science section.

Mr. Arico provided an overview of the four areas under the IOC Ocean Science programme and its services which were mostly research/observation.

The research findings of the first Global Statistical Analysis of Harmful Algal Blooms showed no significant trend worldwide, but specific regions and harmful algal species did show significant increases, pointing to the need for better monitoring and data collection, especially considering greater societal reliance on coastal marine resources.

An exercise called Integrated Ocean Carbon Research was a theoretical designed platform for carbon research for theoretical basis and promotes global network of surface ocean cover research based on the agenda of the IOC.

IOC is the custodian agency for Ocean acidification and SDG indicator 14.3.1 which is where capacity development was also central.

The IOC supports the need to scale up efforts towards the protection of blue carbon ecosystems, contributing to climate change mitigation, adaptation, biodiversity, ocean economies and livelihoods of coastal communities. During the COP26, sessions on many aspects of blue carbon and understanding of deoxygenation and its impacts to SDGs were organized by IOC.

The IOC also coordinated a global effort through different tools and approaches that include Ocean Literacy trainings and resources through the Ocean Literacy Portal and creation of multi stakeholder partnerships to communicate and promote IOC Literacy, and observations, and to help stakeholders so that their perception and values are informed by ocean science.

The Global Ocean Science Report 2020 was an example of capacity development cutting across areas of work of Ocean Science. In the GOSR report, human resources development related data were presented in bibliometric, tachometric and gender specific analyses. The bottom line message was that without capacity development that takes into account the young ocean science professionals, there is no way one can pursue ocean science agenda.

4.1.4 TSUNAMI

This agenda item was introduced by Mr Bernardo Aliaga, Programme Specialist, Tsunami Unit and Tsunami Unit Head (a.i.).

Mr Aliaga provided an overview of the global tsunami warning system and its existing services. Speaking about the capacity development consultations on the implementation of the IOC Capacity Development Strategy, human resource development including higher education and continuous professional development were mainly carried out at country level through respective Universities, organizations, Tsunami Service Providers, and National Tsunami Warning Centre, as well as at Civil Protections Agencies. There was no centrally recognized established centre to support ICG/NEAMTWS on human resource development in tsunamis, tsunami science and tsunami early warning and mitigation systems. One of the greatest achievements of ICG/NEAMTWS was the establishment and accreditation of five tsunami service providers in France, Greece, Italy, Turkey and Portugal.

The ICG/NEAMTWS had started to focus on the downstream - last Mile component of the system, thus there were more interest and opportunities to explore, especially with more involvement and participation of civil protection agencies etc. In the last five years, the visibility and of ICG/NEAMTWS increased due to the parallel effort of the Secretariat and closer collaboration and coordination between ICG/NEAMTWS, IOC Communication Team and UNDRR, as exemplified in the last World Tsunami Awareness Day which acted as catalyst to capacity development. New EU ECHO Project: 1.2 M EUR 2022-2024.

IOC signed a Partnership Agreement with the Government of Indonesia through its Agency for Meteorology, Climatology and Geophysics (BMKG) for the establishment of the Indian Ocean Tsunami Information Center (IOTIC). A large number of Capacity Development activities with/for the Indian Ocean Member States take place through BMKG: exchange information and experiences among the Indian Ocean Member States; Review IOTIC, ICG/IOTWMS and/or the Indian Ocean Member States tsunami related activities; Identify and recommend appropriate actions and improvements of programs and activities implemented by IOTIC, ICG/IOTWMS and/or the Indian Ocean Member; and Increased understanding of the Indian Ocean Member States of UNESCO-IOC, ICG/IOTWMS, and/or IOTIC programs and activities. In coordination with the ICG/IOTWMS Secretariat, IOTIC-BMKG conducted numerous regional workshops on Capacity Building , assisting, enhancing, developing, and/or empowering the Indian Ocean Member States stakeholders to implement programs and activities of UNESCO-IOC, ICG/IOTWMS, and/or IOTIC, which results in strengthened capacity of individuals and organizations of the Indian Ocean Member States in tsunami preparedness.

IOC signed a Partnership Agreement with the Government of Barbados through its Coastal Zone Management Unit (CZMU) for the establishment of the Caribbean Tsunami Information Center (CTIC). A large number of Capacity Development activities with/for the Caribbean Member States take place through CTIC, however there was also a relevant participation of partners like the ITIC Caribbean Office (NOAA/NWS), the Caribbean Disaster Management Agency (CDEMA) and the Seismic Research Center (SCR) of the West Indies University.

In coordination with the ICG/CARIBE EWS Secretariat and the above indicated partners, CTIC conducted numerous regional workshops on Capacity Building, assisting, enhancing, developing, and/or empowering the Caribbean Member States stakeholders to implement

programs and activities of UNESCO-IOC, ICG/ICARIBE EWS, and/or CTIC, which resulted in strengthened capacity of individuals and organizations of the Caribbean Member States in tsunami preparedness.

He ended the presentation highlighting the main social outcome of the UN Ocean Decade making 100% of communities at risk of tsunami prepared for and resilient to tsunamis by 2030.

Ms Laura Kong provided information on the International Tsunami Information Center serves as the Tsunami Information Center for the Pacific. Established in 1965 with the start of the Pacific Tsunami Warning and Mitigation System, it is hosted by the USA NOAA as a joint effort with the IOC. The Chilean Navy has provided the ITIC Associate Director since 1998. The ITIC assists Member States to strengthen their national systems through regular and continuous capacity development in tsunami warning and emergency response operations, and community evacuation planning and exercising. To support the UN Ocean Decade Tsunami Programme, the ITIC is moving its in-person courses for self-paced online and hybrid delivery under the OceanTeacher Global Academy. These foundational courses will provide Member States and their community partners with the background knowledge and skills needed for them to meet the indicators and be recognized as UNESCO IOC Tsunami Ready.

Mr. Andi E. Sakya, GE-CD member from Indonesia, encouraged the Group to support the target outcome of 100% tsunami ready as stated in the tsunami decade program by considering the processes needed, especially in the perspective of Capacity Development, for an improved social awareness and undertakings in achieving this target.

4.1.5 MARINE POLICY

This agenda item was introduced by Mr. Julian Barbieri, Head of Marine Policy and Regional Coordination Section.

He provided an overview of the work of IOC MPR, interfacing supporting knowledge and support to Member States and how it linked to global processes related to policy and science. Most of its work were in supporting implementation of coastal management tools such as ICAM, MSP, Blue Economy agenda and LMEs.

Some frameworks of MPR focusing on the capacity development in ecosystem-based management included:

ICAM Strategy

Objective 1: Build capacity area - based management tools such as Integrated Coastal Area Management, Marine Spatial Planning and Sustainable Blue Economy initiatives, including transboundary and large - marine ecosystem approaches for the sustainable use of marine resources and with a view to achieve a healthy and a productive ocean.

Also endorsed a **Joint Roadmap to accelerate Marine Spatial Planning** processes worldwide (MSP) (2017-202 with Priority 4 for capacity building with the following actions:

- Action VII: Training for planners around the world
- Action VIII: Regional Pilot project to build capacity for MSP
- Action IX: Creation of an international forum for MSP

Third element was building capacity in LMEs through IW-Learn through GEF LME portfolio.

MPR's works also included development of international guidance and decision support tools. In 2021, the new MSP global international guide was published with support from European Commission. Others were policy briefs and flyers as well as other tools such as multilingual storytelling tool.

In the last three years, capacity building activities include conferences, forums, trainings, seminars where over 5,000 stakeholders were involved.

Mr. Barbieri ended his presentation by providing some recommendations for next steps including:

- Integrate MSP/ICM/LME dimension in CD survey 2022 - 2023 to also guide new MSP roadmap (2023 - 2027)
- Reach out to different group of Stakeholders - Practitioners, Scientific community, Institutional managers, private sector, academia
- Consider the concept of mission-oriented Capacity Development, ie. not just data management or observation or mapping , but CD across the whole science value chain leading to increased expertise/skills in applied science for ocean management, climate change adaptation, biodiversity conservation etc.
- Consider emerging interest of GEBCO in CD, building on efforts of IOC and IHO (new GEBCO WG on education and training)
- Support to intergovernmental/UN processes (for eg World Ocean Assessment, SDG global regional frameworks, CBD Post-2020 framework, others)
- Consider BBNJ needs (eg CHM, CD) in the development of IOC Ocean Info/Hub and related service

4.2 REGIONAL PROGRAMMES

4.2.1 IOCARIBE

This agenda item was introduced by Cesar Toro, IOCARIBE Secretariat.

The region being one of the most complex shows high asymmetry with capacity of countries in developing policy and ocean science in their region in general. The countries, institutions and organizations in the region can address this by using three tools: partnerships, networking and cooperation.

The past three years, the region has been using the UN Decade of Ocean Science as a framework in developing partnerships, networking among organizations and cooperation among Member States. Identified

One area where there was high demand on capacity development involved deep sea management. To this end, IOCARIBE organized series of webinars on deep sea management with the International Seabed Authority in order to strengthen international collaboration and facilitate rapid advancement of technology for ocean observation and monitoring of the deep sea.

Another example was collaboration with GEBCO on mapping the asymmetry for the entire region and establishing a strategy on obtaining data and filling the gaps in the region. The proposed strategy had been adopted by Member States and serves as a contribution to the SEABED 2030 programme.

Going beyond particular observation or monitoring, capacity development is a transformative element for achieving the policies and changes needed in order to use ocean science as a major component for policy development and social development.

4.2.2 IOCAFRICA

This agenda item was introduced by Mr. Mika Odido, IOCAFRICA Coordinator.

Mr. Odido provided an overview of the six priority areas of IOCAFRICA as:

- Understanding of the ocean & coastal processes around Africa
- Monitoring and early warning systems for coastal and oceanic natural hazards
- Understanding of how African oceans and coastal areas will be impacted by changing climates
- Managing and mitigating the impacts of coastal hazards and climate change
- Strengthening of marine and oceanographic training and research institutions
- Creation of critical mass of marine science professionals

He then laid the elements of capacity development programme in the region as follows:

BASIC TRAINING

- Strengthening marine science laboratories to be engaged in marine science observations, monitoring and applications
- Strengthening existing or creating new university programmes to educate the next generation of leaders.
- Strengthen UNESCO Chairs as a tool for capacity development

CONTINUOUS PROFESSIONAL DEVELOPMENT

- Regional Training Centres (OTGA) and Centres of Excellence
- Focused training, such as workshops and “summer schools”, addressing specific needs identified by Member States.
- Fellowships/scholarships, participation in conferences, researcher mobility programmes

PARTNERSHIPS

- Collaboration with other IOC Sub Commissions (IOC-WESTPAC and IOCARIBE) in capacity development
- Collaboration with other organizations: WIOMSA, UNEP etc.
- Ensuring equitable participation of African marine scientists in IOC programmes and other global ocean research and observation programmes

In the Sixth Session of the IOCAFRICA, the following activities on Ocean Literacy and Capacity Development for Marine Science and Technology were highlighted:

Activity 2.1:

Undertake comprehensive survey of capacities available for marine science and technology in the region (including human resources and facilities/equipment), building on previous surveys

Activity 2.2:

Development of a portal on training facilities and opportunities in the region, and facilitate the strengthening of the linkages and collaboration between ocean programmes in universities and research institutions

Activity 2.3:

Organize and support training courses and workshops, using regional training centres (Ocean Teacher Global Academy RTCs, UNESCO Chairs and Centres of Excellence) on priority topics identified by IOCAFRICA

Activity 2.4:

Organization of the Kick-Off Conference for the UN Decade of Ocean Science for Sustainable Development (Egypt 2021)

Activity 2.5:

Maintenance of the IOCAFRICA websites as a source of information of the Sub-Commissions programmes and other relevant information

Activity 2.6:

Organize activities to improve ocean literacy/awareness (and activities to mark World Ocean Day and African Day of Seas and Oceans)

The priority topics for capacity development included:

- Data analysis, data assimilation, to ensure use of available data to inform management and planning (development of policy briefs...)
- Ocean forecasting and prediction (including extreme events e.g. storm surges)
- Mapping and marine spatial planning
- Ocean literacy and communications
- Data collection and processing (including introduction to new technologies for ocean observations)
- Marine Biodiversity (including taxonomy)
- Climate change adaptation (including vulnerability)
- Climate variability (focus on use of ocean data/models to improve climate/weather forecasts)
- Application of GIS and remote sensing to ocean science (coastal management?)
- Sea Level Data Analysis and Applications

The following capacity development interventions were highlighted in the regional planning meeting:

- Importance of national funding to ocean research and capacity development (Sustained funding addressing national priorities provides long term benefits for the countries. Involvement of private sector.
- Establishment of a visiting scholar/exchange programme to enable countries at different levels of development and different skill sets to share expertise and experiences. Scholarship/mentorship programmes for Early Career Scientists.
- Assessment of current status of capacity in the region. Mapping of institutions (including facilities e.g. vessels, laboratories, observation platforms and other equipment), & inventory of experts (specialization, qualification, gender and age).
- Identification of the major clients of capacity development and how their requirements can be addressed.

- The importance of keeping scientists doing good science was stressed with the recommendation to support senior scientists that move to administrative work to continue to maintain their labs and to train and mentor young scientists
- Platform should be developed to facilitate the sharing of infrastructure and optimizing their use.
- Dissemination and use of locally developed technology and tools.
- Establishment of state-of-the-art regional research facilities. Research and academic institutions need to have robust strategies that can be supported by regional and international organizations.
- Need to focus on the young and emerging scientists through robust mentorship programmes.
- WIOMSA's experience demonstrates that there is need to mobilize the scientific community through capacity building, partnerships and research support and link this to policy and should be replicated across Africa.

The IOCAFRICA work plan included the following:

Regional Gap Analysis (with WIOMSA): develop a participatory, succinct statement of the priority needs for Africa under the Ocean Decade and identify the key barriers, opportunities and actions to meet those needs.

- Identify the current state of knowledge and data in ocean science, transdisciplinary research as well as existing infrastructures, networks, partnerships and resources in the region.
- Identify the knowledge gaps, scientific priorities, potential baselines and capacity-development needs in the region in order to achieve the Ocean Decade challenges.
- Elaborate recommendations to co-design regional initiatives, identify opportunities to develop capacity development initiatives as well as opportunities of partnerships and resource mobilization in the region.

Survey of National priorities and strategies

Pre-conference workshop (online, 6-8 December 2021)

Kick-off Conference of the UN Decade of Ocean Science for Sustainable Development for Africa and the Adjacent Island States (10-12 May 2022, Online, with limited physical presence in Alexandria, Egypt)

- provide a forum to take stock of status of ocean science and technology in the region, deliberate on how ocean sciences in Africa should be supported and focused on delivering the required societal outcomes, and seek interest and commitment of the oceanographic community to embark on a number of directions of research which are critical for ocean sustainable management.

Mr. Odido ended his presentation with some recommendations from IOCAFRICA's Regional Consultations on the UN Decade of Ocean Science for Sustainable Development (2021-2030):

- Harnessing the demographic dividend by empowering the huge pool of youthful population. The focus should be on getting them into ocean sciences through focussed ocean literacy programmes, supporting skills development and mentoring to enable them fit in the job market and creating new opportunities for employment.
- The Decade should catalyse research in the following fields: marine renewable energy and deep ocean water applications; bioprospecting, biotechnology and pharmaceuticals; mariculture and offshore aquaculture; climate change impacts and

- the oceans-climate nexus; baseline monitoring of essential ocean variables; mapping ecosystems and habitats; and linking the research results to societal applications.
- Improving the quality and quantity of research outputs. Scientists and institutions should think beyond producing publications to transforming lives through innovation and robust application of ocean science.
 - Ocean research in the region should be strengthened through stronger integration of sciences, greater investment in ocean observing systems and improved science-policy interface. New partnerships should be developed, supported by a new ocean-climate finance, and improved ocean literacy and education to modify social norms and behavior...
 - Establishment of university-based ocean innovation incubator hubs, supported by the private sector, to serve as a conduit to transform research results to action via technological development that is adapted to regional and local contexts and led by African researchers.

4.2.3 WESTPAC

This agenda item was introduced by Mr. Somkiat Khokiattiwong, representing Wenxi Zhu of IOC WESTPAC Secretariat.

Capacity development is an integral part of WESTPAC main areas of actions to assist Member States achieving SDG 14 and contribute to the implementation of the IOC Capacity Development Strategy (2015-2021). In consideration of the regional characteristics and common interests of the Member States, the Sub-Commission has been co-designing and co-developing its capacity development activities with Member States in the region to suit their needs for the sustainable development of ocean, seas and coasts, and bolster institutional and human capacity for the Future We Want.

Emphasizing the empowerment of people in marine science, the adaptive, inclusive and empowering capacity development are the guiding principles and approaches include focus on early career scientists, fitting national and regional needs, linking training to research goals and co-designing and co-development with Member States.

WESTPAC employs integrated capacity development tools, which include the development of Regional Training and Research Centers (RTRCs) on marine science with regular training and research opportunities provided in these RTRCs, conduct of a series of regional and national tailored trainings/summer schools, engagement of early career scientists into WESTPAC research programmes via “training through research”, and the establishment of new CD schemes to nurture young science leaders and facilitate international exposure of young scientists, such as the “WESTPAC Best Young Scientist Award” and “WESTPAC Young Scientist Travel Grant”.

Since 2015, the Sub-Commission has been implementing the IOC CD strategy, and fulfilling its voluntary commitment to the UN Ocean Conference - “Develop research capacity and transfer of marine technology through the UNESCO/IOC Regional Network of Training and Research Centres (RTRCs) on Marine Science” (#OceanAction15266). The Regional Training and Research Centre on Ocean Dynamics and Climate (RTRC-ODC) and Regional Training and Research Centre on Marine Biodiversity and Ecosystem Health (RTRC-MarBEST) have been operating smoothly since 2011 and 2016 respectively, with annual trainings provided to early career ocean scientists in the region and beyond. Meanwhile,

other three RTRCs, respectively on Reef Management and Restoration (hosted by the University of the Philippines), Marine Toxin and Food Safety (the Institute of Oceanography, Vietnam), and Plastic Marine Debris and Microplastics (East China Normal University, China) are ready to receive young scientists from Member States within and outside region, as soon as the pandemic ends. The RTRC initiative has been also recognized as an effective mechanism and best practice in the region for capacity development at the UN Decade Regional Planning Workshop (31 July-2 August 2019, Tokyo, Japan), and the Regional Dialogue on Co-designing Ocean Science for the Ocean We Want (Virtual, 10 November 2020).

In addition to the training and research opportunities provided in RTRCs, a number of tailor regional and national training courses/ summer schools were designed and conducted in WESTPAC Member States on a rotational basis, covering a wide range of national and regional ocean priority issues such as harmful algal blooms, coral reef restoration and conservation, ocean remote sensing, ocean acidification, marine plastic pollution, marine scientific diving and sampling.

The WESTPAC International Marine Science Conference, held every three years, evolved another valuable mechanism for engaging young scientists in international cooperative programmes. For each conference, more than 40- 50 selected early career scientists are provided with financial support for their participation in and interaction with senior researchers.

4.2.4 IOCINDIO

This agenda item was introduced by Justin Ahanhanzo, IOC Regional Liaison Officer and Acting IOCINDIO Technical Secretary.

In support of the implementation of the CD Strategy, the IOCINDIO regional workplan included all regional programmatic priorities, in particular,

- Scientific, Technical and Institutional Innovations for National and Regional Framework on Coastal Vulnerability Assessment and Monitoring for Sea- Level Rise and Storm Surges in the Indian Ocean Region, 27-30 May, 2019 at ITOcean, INCOIS, Hyderabad, India.
- Networking with infrastructures sharing in the region, notably the UNESCO Chairs and Category 2 Centres in Earth, Ocean and Climate Sciences, OTGA and national institutions serving as primary mechanisms for scientific research, education and training activities.
- Regional Planning Workshop for the Northern/Central Indian Ocean countries as well as ROPME sea area towards the UN Decade of Ocean Science for Sustainable Development (2021-2030), 8-10 January, 2020 NIOT, Chennai, India.
- Indian Ocean Blue Economy Summit – Webinar on Blue Economy in the Indian Ocean region towards United Nations Decade of Ocean Science for Sustainability (2021-2030) held on May 6, 2021, online,

- Methodologies and Approaches of Coastal Vulnerability and Advances in Operational Oceanography Science and Technology in the Indian Ocean, INCOIS/ITCOcean, 13-17 December 2021.

Mr. Ahanhanzo ended his presentation enumerating the following support that IOC global programmes can provide to the region to contribute to its CD requirements through their existing tools and methods (eg OceanExpert, OTGA, OIH, training opportunities, research vessels, large infrastructure, GOSR, research cruise information, POGO fellowship, etc...)

- (i) On-Job training, international and in-region science mobility facilities, (ii) Fellowships/Bursaries, (iii) Joint regional and international projects, (iv) Linking global programmes to national and regional needs, priorities and institutions, (v) Support for planning regional cruises, (vi) Connection with global networks and funding partners.

Day 1 of the GE-CD-III was closed by Mr. Alan Evans. He thanked everyone for their attendance and reminded them that the rest of the agenda items will be discussed on the next day.

Day 2 of the GE-CD-III was opened by Mr. Ariel Troisi. He gave a recap of the agenda items discussed on the first day of the meeting. He introduced the agenda items for the second day and highlighted that the discussions will focus on the future tasks of the Group.

5. CAPACITY DEVELOPMENT IN THE UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT

5.1 OVERVIEW OF THE CD CHAPTER OF THE OCEAN DECADE IMPLEMENTATION PLAN

This agenda item was introduced by Ms Alison Clausen, Decade Coordination Unit at IOC.

Ms. Clausen provided updates on Decade Actions and its capacity development aspects. The first Call for Decade Actions (No. 01/2020), which was launched on October 2020 and closed in January 2021, resulted in 31 programmes from a huge range of topics from Observations, Prediction, Modelling, Mapping; Multiple Ocean Stressors; Deep Sea & Mesopelagic; Coastal Resilience; Fisheries; and Cultural Values / Ocean Literacy, ten actions led by UN agencies such as IOC and FAO, 36 contributions from diverse groups of partners, and 84 projects. Full list can be found on: www.oceandecade.org

Cross-cutting regional programmes included focus on Pacific and Mediterranean, and network programmes such as Best Practices, ECOPs, gender, capacity development, networks to facilitate co-design and co-creation of Decade Actions including innovation, stimulate investment and incite global engagement were also endorsed via the first Call for Decade Actions (No. 01/2020).

The second Call for Decade Actions No. 02/2021, closing in end of January 2021, is currently soliciting:

- Thematic or regional programmes addressing primarily Challenges 1 – Marine Pollution, 2 – Ecosystem Management and 5 – Ocean Climate Nexus (programmes addressing other Challenges to be addressed via an Expression of Interest)
- Soliciting projects for 23 endorsed programmes that have indicated that they are ready to participate in the Call
- Sponsored Call for Decade Actions (projects) with AXA Research Fund and Meer Wissen Initiative
- Instigators of CD, actively seeking ways to become active players, how to best do and shape the kind of CD for the decade
- Support mechanisms for lead partners in LDCs and SIDS

Stakeholder engagement in the Decade is growing via the Global Stakeholder Forum, which is at the heart of the new Ocean Decade website, forum.oceandecade.org and which was soft launched last October. As an online community platform for the Ocean Decade – i.e. the “LinkedIn” of the Decade - it connects the broader community to be involved and provides space for National Decade Committees, Communities of Practice, ECOPs, other groups and their members. It serves as a portal to submit Decade Activities and Decade Actions. The platform also facilitates sharing of information on events, news resources and Decade Actions and tailored to user needs over time.

Another initiative happening involved the creation of formal National Decade Committees and regional taskforces. These structures are important platforms to identify needs for capacity development via the Decade.

5.2 DECADE ACTIONS RELATED TO CD

This agenda item was introduced by Ms Alison Clausen, Decade Coordination Unit (DCU).

A chapter dedicated to Capacity Development in the Implementation Plan of the UN Ocean Decade focused on principles of capacity development as identified from global and regional planning meetings as:

- Needs-driven and focus on exchange of knowledge, information and learning
- Respond to regional and national priorities
- Respect cultural and geographical diversity
- Privilege long-term partnerships
- Focus on mechanisms to accelerate the use of knowledge for societal well-being.
- Target both knowledge generators and knowledge users
- Address all facets of ocean science
- Recognize, respect and engage local and indigenous knowledge holders
- Build on and strengthen existing national and regional networks and resources.
- Identify and overcome barriers to gender, geographical and generational balance

These principles from the Capacity Development Strategic Framework aimed to lead to desired results including:

- Human resources developed at individual and institutional level
- Access to technology and physical infrastructure established or improved
- Global, regional and subregional mechanisms strengthened
- Development of ocean research policies in support of sustainable development promoted
- Awareness and understanding increased and exchanges facilitated on role and values of ocean
- Sustained, long-term resource mobilization reinforced

Capacity development was an integral part of the endorsement criteria for Decade Actions. Some of the key endorsed programmes and projects focusing on capacity development included a University of Michigan-led project with connected network of summer schools, mentoring, and other capacity development activities; an ECOP-led working group that is coming up with range of activities with ECOP focal point; an example of cross regional partnerships between University of Bergen and the University of the South Pacific through a pacific climate scholarship programme supporting PhD students to become leaders in their community; and the Ocean Teacher Global Academy which is the home for many decade related programmes and all of its training programmes as well as Ocean Best Practices and Ocean Literacy initiatives at programmatic and project level

The future priorities for capacity development included:

- Development of curricula to meet identified needs for Ocean Decade partners e.g. Co-design of Ocean Science
- Inventory of future needs of Decade Actions for capacity development
- Inventory of existing and planned initiatives from Decade Actions
- Regional needs assessments for Decade specific gaps
- Future capacity development product development including to meet regional priorities
- Operationalisation of capacity development Community of Practice via the Global Stakeholder Forum
- Ongoing collaboration with OTGA to solidify the role of OTGA as the home of Ocean Decade training products

Responding to a question from Mr Alan Evans regarding the mechanisms and structures of coordinating Communities of Practice, Ms. Clausen clarified that the COPs are organized according to the ten challenges of the Decade as well as by regions / ocean basins, which is a necessary layer for collective impact of the actions. Regarding the needs assessment of the Decade, Ms. Clausen clarified that they are closely coordinating with Ms. Johanna Diwa so the IOC needs assessment efforts are run in parallel for better integration of these two related processes.

Ms. Anne Katrien Lescrauwaet shared that OTGA being recognized as a decade action, is pleasant news. From EU perspective, these instruments were similar to sustainable blue partnerships that aimed to develop 7 year programme related to developing blue economy with science policy and private sectors with important capacity development components. Also “mission ocean” in Horizon Europe had similar objectives and activities so perhaps there were supports to create synergies from these efforts. Ms. Clausen shared that discussions with the European Commission are underway to ensure strong engagement and links between the new EC mission focused on ocean and water, and the Ocean Decade.

Mr. Ariel Troisi highlighted that the GE-CD, while working on IOC CD strategy should also contribute to the Decade through making the synergies of working together in collaborative way possible.

The Group **welcomed** the strong focus of the Decade on CD and invited the DCU to further discuss linkages with IOC's CD strategy and programmes.

6. REVISION OF THE IOC CD STRATEGY 2015-2021

6.1 PROGRESS OF THE GE-CD TASK TEAM RELATED TO THE REVISION OF THE IOC CD STRATEGY

This agenda item was introduced by Mr Luis Pinheiro, Chair of GE-CD Task Team relating to revision of the IOC CD Strategy.

He recalled that the group, during GE-CD-II (online meeting, 26 October 2020), decided to establish the **“GE-CD Task Team related to the revision of the IOC CD strategy”** to identify what changes may be needed in the current IOC CD Strategy (2015–2021) and submit a report for the consideration of the IOC Assembly at its 31st session. The terms of reference are shown below:

IOC Task Team on the revision of the IOC Capacity Development Strategy

The IOC Group of Experts on Capacity Development,

Recognizing the importance of Capacity Development as one of the six functions of the IOC Medium-Term Strategy (2014–2021), 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) published as IOC/INF-1332,

Welcoming the contributions of its Member States towards capacity development at the global and regional level through financial and in-kind contributions,

Stressing the need to share, across programmes and regions, experience and expertise in capacity development, and to coordinate efforts to increase efficiency and maximize impact,

Noting that the IOC Capacity Development Strategy (2015–2021) published as IOC/INF-1332 will expire on 31 December 2021,

Noting further the Capacity Development Chapter of the Implementation Plan of the UN Decade of Ocean Science for Sustainable Development (2021-2030),

Establishes the IOC Task Team on the revision of the IOC Capacity Development Strategy (2021-2030) with Terms of Reference as detailed in Annex I below.

Annex I: terms of reference of the IOC Task Team on the revision of the IOC Capacity Development Strategy

Objectives

The Task Team will draft the IOC Capacity Development Strategy (2022–2030), based upon the IOC Capacity Development Strategy (2015–2021) published as IOC/INF-1332 and taking into account:

- (i) Outcomes of the 2nd IOC Capacity Development Survey (September 2020 - January 2021);
- (ii) Capacity Development Chapter of the Implementation Plan of the UN Decade of Ocean Science for Sustainable Development (2021-2030);
- (iii) Input of consultations with IOC global and regional programmes related to Capacity Development;
- (iv) Input of consultations with UN specialized agencies, non-UN IGOs, Global and Regional organizations, programmes and projects, NGOs and private sector partners.

Mr Pinheiro explained that the Task Team completed its work through [Document IOC-XXXI/3.5.3 GE-CD Task Team report relating to the revision of the IOC Capacity Development Strategy 2015–2021](#). The document provided the findings of the Group and recommendations to the IOC Assembly. The elements that were examined by the team included: (i) Capacity Development Chapter of the UN Decade of Ocean Science for Sustainable Development (2021–2030) Implementation Plan (IP); (ii) outcomes of the 2nd IOC Capacity Development Survey (September 2020–February 2021); (iii) input of consultations with IOC global and regional programmes related to Capacity Development; and; (iv) input of consultations with UN specialized agencies, non-UN IGOs, Global and Regional organizations, programmes and projects, NGOs and private sector partners. In addition, it considered the outcomes of the *Global Ocean Science Report 2020*.

In terms of (i) CD Chapter of the UN Decade, the findings included:

Output 1: **Human resources developed**: The Ocean Decade IP includes new elements that are not in the current IOC CD Strategy

Output 2: Access to physical infrastructure established or improved: There needs to be **more focus on technology** in the IOC CD Strategy

Output 3: Global, regional, and sub-regional mechanisms strengthened: important to **scale-up and accelerate** CD efforts.

Output 4: Development of ocean research policies in support of sustainable development objectives promoted: Both documents emphasize this crucial need for targeted **natural and social science**

Output 5: Awareness and understanding increased, and exchanges facilitated on role and values of ocean: IOC CD Strategy may need to include an **emphasis on facilitating exchanges** on the role and values of the ocean

Output 6. Sustained, long-term resource mobilization reinforced: most similar output among the six outputs, however the IOC CD Strategy could **optimize opportunities for cooperation**

There is also greater emphasis on **supporting developing countries in the UN Ocean Decade IP CD**

In terms of (ii) outcomes of the 2nd IOC CD Needs Assessment Survey, the findings included:

- Promotion of **CD National Focal Points** – only 41 CD Focal Points out of 150
- 5. Member States
 - Recognition of the **differing requirements within different regions**
 - Promote **improved national consultation and coordination** in the defining of the CD needs responses from 25 IOC Focal Points and 10 CD focal points (from 150 MS)
 - **Clearer links between CD and global reporting needs** that would enable developing countries gain access to necessary resources and training

In terms of (iii) and (iv) input from consultations, the findings included:

- Importance of highlighting **long-term CD sustained strategies**;
- Need to develop mechanisms for **monitoring, evaluation** and learning to **assess the quality and impact** of the capacity development activities;
- Capacity development will be better achieved through **partnerships** between developed countries and SIDS and LDCs;
- Integration of **natural sciences and societal disciplines** into a **holistic assessment** of the marine environment must also be a general principle in CD strategies and initiatives;
- Global challenges such as **climate change, biodiversity and habitat loss**, and their impact on marine resources and ecosystem services need to be **central in CD strategies and initiatives**;
- Remove barriers to full **gender and geographic diversity**, and guarantee **equitable access** to ocean knowledge, ocean-related education, training, and transfer of marine technology

Mr Pinheiro highlighted that the results of the Task Team's review to inform the rationale for revising the IOC CD Strategy revealed key elements that need to be incorporated in the revised IOC CD Strategy, so that it provides the kind of capacity development required by the Ocean Decade. In summary:

- **New areas** to add to be more **aligned with CD requirements of the UN Ocean Decade**
- **Reinforce what hasn't yet been achieved** e.g. Implementation Plan
- **Align with other CD efforts of current collaborators/initiatives**
- Take into account a **broader range of disciplines** e.g. social science
- Facilitate **co-design and transdisciplinary** approaches

- **Appropriate format and structure** that is more enticing and easily digestible
- More **visibility and outreach** for target audience/readers

In view of the above, the Task Team recommended the following:

- (i) that the GE-CD continue its work on revising the IOC CD Strategy for 2023–2030. The current Strategy can be extended until 2023 to give sufficient time to delve into this important work.
- (ii) the GE-CD's ToR should be revised to allow a continuation of the work on the revision of the IOC Capacity Development Strategy and the preparation of a proposal for submission to the 32nd Session of the IOC Assembly in June 2023.
- (iii) to considered how to promote visibility and reach of the revised IOC CD Strategy so that its target audience will read through and appreciate the document as a guide in implementing capacity development activities.
- (iv) that the possibility of developing a short policy brief incorporating the key messages for a wider outreach be considered.

The Group **noted with appreciation** the completion of the deliverables required of the Task Team on the review of the IOC CD Strategy and **decided** to abolish the Task Team.

The Group **re-iterated** its call to Member States to designate IOC CD focal points.

6.2 DECISIONS TAKEN BY IOC-XXXI ON THE REVISION OF THE IOC CD STRATEGY

This agenda item was introduced by Mr Alan Evans. He recalled that he had reported on the work of the GE-CD and its Task Teams under agenda item 3.5.3 of the 31st Session of the IOC Assembly.

He then referred to agenda item 2.2.1 for actions and decisions relating to the revision of the IOC CD Strategy adopted by the Assembly through the IOC Decision A-31/3.5.3, and focused on those related to the revision of the IOC CD Strategy, such as:

The Assembly,

[...]

Decides to extend the current IOC Capacity Development Strategy until July 2023,

Decides also to revise the Terms of Reference of the IOC Group of Experts on Capacity Development as follows:

[...]

vii) revise the IOC Capacity Development Strategy and prepare a proposal for submission to the IOC Assembly at its 32nd Session;

viii) prepare a proposal to promote visibility and reach of the revised IOC CD Strategy so that its target audience will read through and appreciate the document as a guide in implementing capacity development activities for submission and submit it to the IOC Assembly at its 32nd Session;

The Group **noted** the actions required from the GE-CD as mentioned in the IOC Decision A-31/3.5.3 and **agreed** to take these into account in its work plan for the next inter-sessional period.

6.3 NEXT STEPS

This agenda item was introduced by Mr Alan Evans. He recalled the discussions under agenda items 6.1 and 6.2 and noted that the Task Team related to the revision of IOC CD Strategy had now completed its work. He invited the Group to consider the establishment of a Working Group to continue with the next steps in preparing the new IOC CD Strategy 2023-2030. He then opened the floor for members who would like to join the Working Group and discussed their respective assignments related to the next steps in preparing the new IOC CD Strategy 2023-2030.

As mentioned in the IOC Decision A-31/3.5.3, the Group was instructed (through the IOC Decision A-31/3.5.3) to (vii) revise the IOC Capacity Development Strategy and prepare a proposal for submission to the IOC Assembly at its 32nd Session; and (viii) prepare a proposal to promote visibility and reach of the revised IOC CD Strategy so that its target audience will read through and appreciate the document as a guide in implementing capacity development activities for submission and submit it to the IOC Assembly at its 32nd Session.

As such, the following steps by the GE-CD and timing were proposed in preparation for submission to the IOC Assembly at its 32nd Session on June 2023;

vii) revise the IOC Capacity Development Strategy and prepare a proposal for submission to the IOC Assembly at its 32nd Session;

- *Establish WG – ToRs, Members, WG Chair (by 17 Dec 2021)*
- *WG meetings for the new IOC CD Strategy 2023-2030 (January-March 2022)*
- *WG write inputs for consideration by the GE-CD (April 2022-June 2022)*
- *WG prepare first draft (July 2022)*
- *Review first draft at GE-CD-IV (October 2022)*
- *WG revise first draft (January 2023)*
- *Secretariat to finalize the IOC CD Strategy for submission to the IOC-XXXII Session (March 2023).*

viii) prepare a proposal to promote visibility and reach of the revised IOC CD Strategy so that its target audience will read through and appreciate the document as a guide in implementing capacity development activities for submission and submit it to the IOC

Assembly at its 32nd Session;

- *Establish Outreach WG – ToRs, Members, WG Chair*
- *WG prepare draft outreach plan for presentation at the GE-CD-IV*
- *Review draft plan at the GE-CD-IV (October 2022)*
- *WG revise first draft*
- *Secretariat to finalize proposed outreach plan for submission to the IOC-XXXII (March 2023).*

Mr Brown expressed concern about the lack of involvement at institutional level through focal points. He proposed to consider asking the RSBs to help in the creation of focus groups that include Focal Points but also other experts in the region that may be people who retired but have experience in this area. The focus groups can be asked to deal with institutional aspects and country needs related to CD. Focus groups can also help with the need for institutional reform to utilize what has been done in the past responding to training needs, new technology and data availability but still has not worked well.

Mr Troisi supported working with RSBs to establish focus groups, but it has to be also considered that some Member States are not yet members of RSBs or not active, so there should be a way to get to these.

Mr Pinheiro suggested sending Circular Letters addressed directly to focal points while also expressing the need to have CD focal point. He also raised the need for internal coherence in identifying priorities at a national level. Mr. Troisi noted the need for personalized communication to reach out to national focal points to look holistically at the CD needs in their country.

Mr Rafael Gonzalez responded to the question of having a separate working group for the outreach and promotion of the new IOC CD Strategy. Admittedly, these may require specialized skills for outreach and people who are engaged in capacity development may not necessarily have these skills.

Mr Ahanhanzo noted that the info from IOC CD Focal Point may not be different from that of the IOC Focal Point. There were also instances wherein both the CD Focal Point and the national Focal Point were the same person, thus focal institution might be better than this. There has to be an inclusive national committee that is interdisciplinary to cover all competencies.

Mr Pissierssens highlighted the need to work together with RSBs and Focal Points for sufficient coordination in getting inputs from Member States. RSBs representatives may be able to talk to the Focal Points and if these are different, organize national consultations to come up with national coordination to get inputs.

Mr Troisi clarified that a working group on outreach can build on other interventions to find a solution if the Group don't have enough expertise for outreach. He suggested connecting with IOC communication unit and go beyond the usual path through Circular Letters, adding also personal communications.

Ms Allison Reed agreed to the value of two working groups, wherein the outreach working group can tackle the challenges and look for solutions. Regarding the survey, she expressed that the hesitancy to participate was that the US did not have needs as compared to developing countries. Mr Werner Ekau agreed that in the next survey, questions on what they can offer may be more useful to address the gaps where assistance is needed. Mr Troisi underlined that the next survey can be more comprehensive as a matchmaking needs-opportunities and capture both needs from developing countries and what can be offered by other Member States who can provide support.

The Group **decided** to establish the GE-CD Working Group for the revision of the IOC CD strategy with the following ToRs:

IOC Working Group on the revision of the IOC Capacity Development Strategy

The IOC Group of Experts on Capacity Development,

Recognizing the importance of Capacity Development as one of the six functions of the IOC Medium-Term Strategy (2014–2021), 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) published as IOC/INF-1332,

Welcoming the contributions of its Member States towards capacity development at the global and regional level through financial and in-kind contributions,

Stressing the need to share, across programmes and regions, experience and expertise in capacity development, and to coordinate efforts to increase efficiency and maximize impact,

Noting that the IOC Capacity Development Strategy (2015–2021) published as IOC/INF-1332 will expire on 31 December 2021,

Noting further the Capacity Development Chapter of the Implementation Plan of the UN Decade of Ocean Science for Sustainable Development (2021-2030),

Establishes the IOC Working Group on the revision of the IOC Capacity Development Strategy with Terms of Reference as detailed in Annex I below.

Annex I: Terms of Reference of the IOC Working Group on the revision of the IOC Capacity Development Strategy

Objectives

The Working Group will

1. Prepare the Draft IOC Capacity Development Strategy (2023–2030), based upon the IOC Capacity Development Strategy (2015–2021) published as IOC/INF-1332, and taking into account the results and recommendations made by the GE-CD Task Team relating to the revision of IOC CD Strategy, from the following inputs:

(i) Outcomes of the 2nd IOC Capacity Development Survey (September 2020 - January 2021);

(ii) Capacity Development Chapter of the Implementation Plan of the UN Decade of Ocean Science for Sustainable Development (2021-2030);

(iii) Consultations with IOC global and regional programmes related to Capacity Development;

(iv) Consultations with UN specialized agencies, non-UN IGOs, Global and Regional organizations, programmes and projects, NGOs and private sector partners.

- Submit a preliminary Draft IOC Capacity Development Strategy (2023–2030) to the Group of Experts on Capacity Development during its 4th Meeting on October 2022 for its review and subsequent submission of the final Draft IOC Capacity Development Strategy (2023–2030) for adoption by the 32nd Session of the IOC Assembly.

- The Working Group will carry out its work via electronic means.

Membership:

1. The following members of the IOC Group of Experts on Capacity Development:

BARROW, Lorraine	TRINIDAD & TOBAGO
BROWN, Bradford	UNITED STATES
EKAU, Werner	GERMANY
EVANS, Alan	UNITED KINGDOM
GONZÁLEZ-QUIRÓS, Rafael	SPAIN
KABANGI, Patrick	CONGO
REED, Allison	UNITED STATES
SAKYA, Andi Eka	INDONESIA
TROISI, Ariel	ARGENTINA

2. The following IOC CD focal points:

KHOLEIF, Suzan	EGYPT
YAO, Koffi Marcellin	COTE D'IVOIRE

3. IOC CD Secretariat:

DIWA, Johanna	PHILIPPINES
PISSIERSSENS, Peter	BELGIUM

The Group **decided** to take time to determine how best to establish a separate outreach working group, and to do so by July 2022. Details for this will be developed by correspondence in the coming months.

The Group **invited** the IOC communications team to participate in, and provide support and guidance to the GE-CD working group on outreach and promotion.

The Group **decided** to use a more comprehensive approach for the next survey involving all MS to enable linking CD needs and CD opportunities.

7. WORK PLAN FOR THE NEXT INTER SESSIONAL PERIOD

This agenda item was introduced by Ms. Johanna Diwa.

She recalled the discussions under agenda item 2.2.1, where the revised terms of reference of GE-CD was adopted. She proposed the following work plan for the consideration by the group. She suggested that GE members indicate which tasks in the work plan they would be willing to contribute to, and send their inputs through online correspondence/email to the Secretariat (jp.diwa@unesco.org / p.pissierssens@unesco.org).

Activity	In-Charge	Timeline
<i>As discussed under agenda item 4, the following tasks relating to coordination of global and regional programmes in implementing IOC CD Strategy included:</i>		
i) assist global and regional programmes with the implementation of capacity development needs assessments in a consistent manner;	Bradford Brown (BB)	

<p>ii) 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;</p>	<p>Bradford Brown (BB)</p>	
<p>iii) provide advice to global and regional programmes on relevant methods and tools to improve the quality and impact of CD efforts;</p>	<p>Bradford Brown (BB)</p>	
<p><i>As discussed under agenda item 2.1.1 - 2.1.2, the following tasks relating to CD requirements of Member States in relation to the IOC CD Strategy included:</i></p>		
<p>iv) repeat the CD survey at regular intervals in 2022 and biannually thereafter, possibly including CD implementation impact monitoring/metrics, also taking into account other methods such as regional reviews, science conferences etc.;</p>	<p>Johanna Diwa (JD)</p>	<p>October 2022</p>
<ul style="list-style-type: none"> - Develop draft - Finalize survey tool - Present at the GE-CD-IV - Conduct survey - Analysis - Summary report 		<p>August 2022 September 2022 October 2022 November 2022 - January 2023 February 2023 March-April 2023</p>
<p>v) ensure coordination of the work of the Group of Experts and its Task Teams with GOSR and CD aspects of the UN Decade of Ocean Science for Sustainable Development;</p>		
<p>vi) advise the Assembly on the Transfer of Marine Technology Clearing House Mechanism (CHM) as requested by the <i>IOC Criteria and Guidelines on the Transfer of Marine Technology</i> (IOC/INF-1203), making use, to the largest extent possible, of existing data and information systems and building upon the Ocean InfoHub project (2020–2023);</p>		
<p><i>As discussed under agenda item 6.2-6.3, the following tasks relating to the revision of the IOC CD Strategy included:</i></p>		

vii) revise the IOC Capacity Development Strategy and prepare a proposal for submission to the IOC Assembly at its 32nd Session;		June 2023
- <i>WG meetings for the new IOC CD Strategy 2023-2030</i>		<i>January-March 2022</i>
- <i>WG write inputs for consideration by the GE-CD</i>		<i>April 2022-June 202</i>
- <i>WG prepare first draft</i>		<i>July 2022</i>
- <i>Review first draft at GE-CD-IV</i>		<i>October 2022</i>
- <i>WG revise first draft</i>		<i>January 2023</i>
- <i>Secretariat to finalize the new IOC CD Strategy 2023-2030 for submission to the IOC-XXXII Session</i>	<i>Johanna Diwa (JD)</i>	<i>March 2023</i>
viii) prepare a proposal to promote visibility and reach of the revised IOC CD Strategy so that its target audience will read through and appreciate the document as a guide in implementing capacity development activities for submission and submit it to the IOC Assembly at its 32nd Session;		June 2023
- <i>WG prepare draft outreach plan for presentation at the GE-CD-IV</i>		
- <i>Review first draft at the GE-CD-IV</i>		<i>October 2022</i>
- <i>WG revise first draft</i>		
- <i>Secretariat to finalize proposed outreach plan for submission to the IOC-XXXII Session</i>	<i>Johanna Diwa (JD)</i>	<i>March 2023</i>

The Group agreed to the work plan presented.

The Group agreed to address the responsibilities, deadlines and deliverables expected from the group as detailed in the work plan, through email/online correspondence with the Secretariat. The Secretariat shared the work plan with the GE-CD and invited the experts to

fill in their names under the tasks they wish to contribute to.

8. PLACE AND DATE OF NEXT SESSION

This agenda item was introduced by Ms Johanna Diwa.

The 4th Session of GE-CD is currently planned for October 2022. Regarding venue, it would depend on the possibility to hold a face-to-face meeting. Associated details and arrangements will be discussed during the intersessional period.

The GE-CD **decided** to have its 4th Session in October 2022 preferably as face-to-face meeting.

9. ELECTION OF CHAIRS

This agenda item was introduced by Mr Peter Pissierssens, IOC CD coordinator.

He noted that Mr Ariel Troisi had been elected Chair during the First Session of the Group in March 2018. In 2019 Mr Troisi was elected Chair of the IOC. As this additional responsibility would make it difficult to carry out full Chairmanship responsibilities of the IOC GE-CD, Mr Troisi had requested the designation of a Co-Chair. After a brief online consultation of Group members, Mr Alan Evans had been designated Co-Chair. During the Second Session of the Group in October 2020, Mr. Troisi and Mr. Evans were both re-elected as Chairs.

According to IOC Manual IOC/INF-785, Chairs of subsidiary bodies (such as Groups of Experts) are elected by the body itself. They can be re-elected once but it also states "however, on an exceptional basis and in the interest of the Commission" may be re-elected for one further term. The Group was invited to re-elect Mr. Troisi and Mr. Evans, and set up a nomination and election process in time for the 4th Session of the GE-CD.

The Group **decided** to re-elect Mr Ariel Troisi and Mr Alan Evans as Co-Chairs of the GE-CD. Mr Troisi thanked the group for its confidence and collaboration. Mr Evans said it was an honour to be a member and Co-Char. Capacity development is essential component and we have important role to play. He also thanked the Secretariat for their support to the work of the Group. He looked forward to the success of the Group.

The GE CD members expressed their strong appreciation to the Co-Chairs for their commitment and active support of the Group.

10. CLOSING OF THE MEETING

This agenda item was introduced by Mr Ariel Troisi. He noted that in view of the short duration of the meeting it was not possible to adopt the report of the meeting during the meeting as was custom. He therefore requested the agreement of the Group to prepare the report after the meeting and for the Group to adopt the report by email (after giving the opportunity to the Members to comment on the report).

The Group **instructed** the Secretariat to finalize the report of the meeting, including the new work plan, and to circulate it to the Members for adoption by email.

The Group **requested** its Chairs to report on the proceedings of the 3rd Session of the IOC GE-CD through the report of the Executive Secretary to the IOC Exec Council in 2022.

The Co-Chairs **closed** the meeting on Thursday 2 December 2021 at 15:10.

ANNEXES

ANNEX I. AGENDA

1. OPENING OF THE MEETING

- 1.1. Address by the Co-Chairs of the Group of Experts
- 1.2. Adoption of the agenda and timetable

2. STATUS OF THE WORK OF THE 2nd SESSION AND INSTRUCTIONS FROM THE IOC-XXXI

- 2.1. Report on implementation off the GE-CD-II work plan
 - 2.1.1. Report on the Ocean InfoHub project and its contribution to the TMT/CHM
 - 2.1.2. Report on consultations on the revised terms of reference of the Inter-sessional Task Team to start work to identify CD requirements of Member States in relation to the IOC CD Strategy
- 2.2. Instructions from the 31st Session of the IOC Assembly (2021) and their follow-up actions
 - 2.2.1 Revision of the Terms of Reference of the GE-CD

3. RESULTS OF THE 2ND CD NEEDS ASSESSMENT SURVEY (2020-2021)

- 3.1 Overview
- 3.2 Follow-up actions of the 2nd CD needs assessment
- 3.3 Recommendations for the 3rd CD needs assessment (2022-2023)

4. IMPLEMENTATION OF THE IOC CD Strategy BY GLOBAL AND REGIONAL PROGRAMMES

- 4.1 Global programs and projects
 - 4.1.1 OTGA
 - 4.1.2 GOOS
 - 4.1.3 Ocean Science
 - 4.1.4 Tsunami
 - 4.1.5 Marine policy
- 4.2 Regional programmes
 - 4.2.1 IOCARIBE
 - 4.2.2 IOCAFRICA
 - 4.2.3 WESTPAC
 - 4.2.4 IOCINDIO

5. CAPACITY DEVELOPMENT IN THE UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT

- 5.1 Overview of the CD Chapter of the Decade Implementation Plan
- 5.2 Decade actions related to CD

6. REVISION OF THE IOC CD STRATEGY 2015-2021

- 6.1 Progress of the GE-CD Task Team related to the revision of the IOC CD Strategy
- 6.2 Decisions taken by IOC-XXXI on the revision of the IOC CD Strategy
- 6.3 Next Steps

7. WORKPLAN FOR THE NEXT INTERSESSIONAL PERIOD

8. DATE AND PLACE OF NEXT MEETING

9. ELECTION OF THE CHAIRS

10. CLOSING

ANNEX II. LIST OF PARTICIPANTS

Event: **3rd Session of Group of Experts on Capacity Development (GE-CD III)**

Dates: 2021-Dec-01 to 2021-Dec-02

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