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INFORMATION DOCUMENT

**GE-CD TASK TEAM REPORT RELATING TO THE REVISION
OF THE IOC CAPACITY DEVELOPMENT STRATEGY 2015–2021**

Summary. During the second meeting of the Group of Experts on Capacity Development (GE-CD), a task team was established to conduct a review of the IOC Capacity Development Strategy 2015–2021, which is expiring at the end of December 2021.

This information document presents a summary of the task team's review, articulating the main elements that would justify a revision of the current Strategy: mainly the challenges and objectives promoted by the UN Ocean Decade of Ocean Science for Sustainable Development (2021–2030) and the outcomes of the 2nd GE-CD survey. Feedback from consultations with other global and regional programmes were also considered in developing the recommendations contained in this report.

Based on this analysis, the Task Team recommends that the GE-CD continue its work on revising the IOC CD Strategy for the period 2023–2030, extending the current Strategy until 2023.

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1. INTRODUCTION AND BACKGROUND

The current IOC Capacity Development Strategy was developed for the period 2015-2021, and, accordingly, it will “expire” in December 2021. As discussed in the Second Session of the IOC Group of Experts on Capacity Development at its second meeting ([report](#)), the Group would need to consider the elements that would guide a revision of the Strategy beyond 2021. Such elements include the UN Decade of Ocean Science for Sustainable Development, outcomes of the 2nd CD survey and consultations with other global and regional programmes, as well as with capacity development programmes of UN specialized agencies, non-UN IGOs, global and regional programmes or projects, NGOs, private sectors, etc.

2. ESTABLISHMENT OF THE GE-CD TASK TEAM RELATED TO THE REVISION OF THE IOC CAPACITY DEVELOPMENT STRATEGY

As decided in its second Meeting, the IOC Group of Experts on Capacity Development (CD) decided to establish the GE-CD Task Team related to the revision of the IOC CD Strategy and submit a report for consideration of the IOC Assembly at its 31st Session in June 2021. The terms of reference of the Task Team and its members were finalized and decided through online correspondence as presented below.

GE-CD Task Team related to the revision of the IOC Capacity Development Strategy

Terms of Reference and composition

GE-CD Task Team related to the revision of the IOC Capacity Development Strategy

The IOC Group of Experts on Capacity Development (GE-CD),

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), where Capacity Development is an essential tenet of the Decade for all Decade activities.

Establishes the GE-CD Task Team related to the revision of the IOC Capacity Development Strategy (2015-2021) with Terms of Reference as detailed below.

Annex

Terms of reference of the GE-CD Task Team related to the revision of the IOC Capacity Development Strategy

Objectives

The Task Team will analyze the reasons for and develop the rationale supporting a revision of the IOC Capacity Development Strategy (2015-2021), published as IOC/INF-1332 and will provide an updated text, as found appropriate, taking into account:

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

The Task Team will work online and by correspondence.

The Task Team will submit a report to the GE-CD not later than 1 March 2021 for its approval and subsequent submission to the 31st Session of the IOC Assembly.

Membership

The Task Team will comprise:

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

<i>Aidy Muslim</i>	<i>Malaysia</i>
<i>Bax, Nic</i>	<i>Australia</i>
<i>Brown, Bradford</i>	<i>USA</i>
<i>Zhu, Xuan</i>	<i>China</i>
<i>Totani, Gen</i>	<i>Japan</i>
<i>Andi E Sakya</i>	<i>Indonesia</i>
<i>Rafael González-Quirós</i>	<i>Spain</i>

2. the following IOC CD National Focal Points:

<i>Suzan Kholeif</i>	<i>Egypt</i>
<i>Pinheiro, Luis</i>	<i>Portugal</i>
<i>Sohou, Zacharie</i>	<i>Benin</i>
<i>Koffi Marcellin Yao</i>	<i>Côte d'Ivoire</i>
<i>Frederico Antonio Saraiva Nogueira</i>	<i>Brazil</i>
<i>Carlos Rodolfo Torres Navarrete</i>	<i>Mexico</i>

3. *UNESCO-IOC*

<i>Aliaga, Bernardo</i>
<i>Diwa, Johanna</i>
<i>Pissierssens, Peter</i>

Task Team First and Second Meetings

The GE-CD Task Team related to the revision of the IOC Capacity Development Strategy conducted two meetings. The first meeting was held on 7 December 2020 ([more here](#)) which reviewed its terms of reference and agreed on its work plan for the next 2 months. The summary report of the meeting is available [here](#).

The Second Meeting of the GE-CD Task Team was held on 12 February 2021. The meeting provided a report summarizing the results of the review of several elements that would justify the revision of the IOC CD Strategy. The group agreed on the next steps and writing assignments for

preparing a draft report for submission to the IOC Group of Experts on Capacity Development. The summary report of the meeting is available [here](#).

3. GLOBAL OCEAN SCIENCE REPORT 2020

In 2020, the IOC published the *Global Ocean Science Report 2020*, a resource for a wide range of stakeholders, including policymakers and academics, seeking to understand and harness the potential of ocean science for addressing global challenges (IOC-UNESCO, 2020¹). Its findings inform on the global current status of ocean science capacity and therefore have relevant implications for sustainable development policies and provide additional elements for revising the IOC CD Strategy.

3.1 FINDINGS RELEVANT TO CD

In terms of ocean science generating both knowledge and applications:

- *Global ocean science outputs are continuously rising but with regional differences emerging.*
- *Competitive ocean science is driven by international partnerships. International collaboration results in a higher quality of work.*
- *Ocean science findings are converted into applications for society. ‘Technologies’ or ‘Applications for mitigation’ or ‘Adaptation to climate change’ are the most frequent ocean science-related technologies in the Cooperative Patent Classification (CPC).*
- *There is increasing recognition of the ocean’s role in regulating the climate and the negative impact of anthropogenic change on ocean health. Ocean science discoveries feed into nearly all sectors of the economy.*

In terms of marine technology:

- *Access to technical infrastructure required for ocean science remains unequally distributed.*
- *Countries in the southern hemisphere only have limited access to ocean science technologies and infrastructure.*
- *Access to the open ocean is not a given. More than a third of this global research fleet is maintained by the USA. Based on information obtained for 920 research vessels, local and coastal research is the primary purpose of 24% of these research vessels in 35 countries: 8% of the vessels operate at regional, 5% at international and 11% at global scale.*

In terms of investments:

- *There are large differences in countries’ investment’ in ocean research.*
- *On average, only 1.7% of national research budgets are allocated for ocean science, with percentages ranging from around 0.03% to 11.8%. This is a small proportion compared to the modestly estimated US\$1.5 trillion contribution of the ocean to the global economy in 2010.*

¹ IOC-UNESCO. 2020. *Global Ocean Science Report 2020–Charting Capacity for Ocean Sustainability*. K. Isensee (ed.), Paris, UNESCO Publishing

In terms of ocean science in support of sustainable development and management of ocean resources:

- *Many countries lack a specific strategy to measure progress towards the achievement of SDG 14.*
- *Of the 37 countries that responded to the related GOSR2020 question, over 70% have strategies and a roadmap to achieve the goals of the 2030 Agenda. However, only 21% reported that they have a specific strategy focusing on the ocean and SDG 14.*

3.2 GAPS

- *Funding for ocean science is largely inadequate, undermining the ability of ocean science to support the sustainable provision of ocean ecosystem services to humanity.*
- *Women in ocean science continue to be under-represented, particularly in the highly technical categories.*
- *Gender equality in ocean science is far from having been achieved but the challenge to reach it is realistic. Female researchers account for 39% of global ocean scientists, 10% higher than the global share of female researchers in natural sciences. Female ocean scientists are increasingly talking to the world. Female participants account for 29% to 53% of total conference participants, depending on ocean science category and region.*
- *Lack of recognition of the role that early career ocean scientists and professionals as intellectual source and workforce in the future.*
- *Unequal distribution of technical capacity of ocean science, accentuated by short-term or ad hoc funding for ocean science.*
- *Countries are inadequately equipped to manage their ocean data and information, which hampers open access and data sharing.*
- *Systematic enabling frameworks and strategies are missing in many parts of the world.*

3.3 RECOMMENDATIONS

- *Enhance the current level of funding for ocean science.*
- *Establish continuous collection of internationally comparable data on investments in ocean science.*
- *Facilitate co-design of ocean science by involving ocean science information users and producers.*
- *Promote multistakeholder partnerships in ocean science and operationalize transfer of marine technology.*
- *Move towards ocean science capacity development with the equal participation of all countries, genders and ages, embracing local and indigenous knowledge.*
- *Develop strategies and implementation plans to support the career needs of women and young scientists.*
- *Find solutions to remove barriers for open access to ocean data.*

- *Foster education and training in professions related to ocean sciences.*
- *Assess the impact of the COVID-19 pandemic on human and technical capacity in ocean science.*

4. CAPACITY DEVELOPMENT CHAPTER OF THE IMPLEMENTATION PLAN OF THE UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT (2021–2030)

The [UN Decade of Ocean Science for Sustainable Development](#) (hereafter referred to as ‘the Ocean Decade’) will provide the enabling framework across the UN system to support countries in achieving their ocean-related 2030 Agenda priorities. It will facilitate the transformation of existing or new knowledge and understanding into effective action supporting improved ocean management, stewardship, and sustainable development.

Capacity development (CD) is an essential tenet of the Ocean Decade. It has the ultimate aim of achieving evenly distributed capacity across the globe, across generations, and across genders and thus reverse asymmetry in knowledge, skills and access to technology. Importantly, capacity development efforts will focus not only on capacity to do the science, but also on capacity to understand the societal relevance of the science, and to use the science to support decisions for sustainable development. In this sense, the targets of capacity development as part of the Ocean Decade include not only scientists, but also the end-users of knowledge such as governments and policymakers.

With the aim to identify how the CD Action Framework of the Ocean Decade Implementation Plan (IP) may inform the elements for revision of the current IOC CD strategy, the task team made a comparison between the key elements in the CD Chapter Ocean Decade IP vis-à-vis the current IOC CD Strategy.

4.1 VISIONS AND OBJECTIVES

The vision of the Ocean Decade is *The science we need for the ocean we want*, while its mission is *Transformative ocean science solutions for sustainable development, connecting people and our ocean*. Its rationale highlights that the most pressing need today is to collectively find transformative solutions to the existing and future challenges that face the ocean, and that the world requires a “transformational, large scale, adequately resourced, innovative campaign to mainstream ocean science.”

The Ocean Decade capacity development efforts focus on capacity to do the science, as well as on the capacity to influence the design of the science and participate in co-design efforts to develop solutions for sustainable development. This implies increased capacity to understand why ocean science is important for achieving the UN Sustainable Development Goals (SDG), as well as capacity development targeting a wide range of sustainable development solutions (for example, evidence-based policy-making, management, innovation or technology). In this sense, capacity development targets include not only scientists, but also the users of knowledge such as governments, policymakers, managers and innovators.

The Ocean Decade can highlight the critical role of sustained ocean data, observations, and knowledge for future sustainable development solutions and climate action. It can provide a global forum to identify the most urgent needs in ocean knowledge and capacity development to contribute to a post-COVID-19 recovery in the context of a changing climate, and it can accelerate the development of technology, including, for example, autonomous research equipment to collect ocean data or enhanced platforms for online collaboration and data sharing.

The Ocean Decade can highlight the inequalities that exist in ocean science capacity between countries and stakeholders and thus push and amplify resources to bridge the widening divide. Also, Ocean Decade CD efforts will focus on, but will not be limited to LDCs, SIDS and LLDCs. Specific

approaches for these beneficiaries will be required including the use of low-bandwidth / low-technology tools in areas where access to digital telecommunications is limited. The resource needs for SIDS, LDCs and LLDCs to participate in capacity development efforts will be addressed as part of resource mobilization efforts.

The vision statement of IOC's CD Strategy states: "Through international cooperation, IOC assists its Member States to collectively achieve the IOC'S high-level objectives (HLOs), with particular attention to ensuring that all Member States have the capacity to meet them". Its mission statement states that: "The IOC will undertake relevant actions to assist Member States with developing and sustaining the necessary capacity to undertake activities necessary to achieve the IOC vision at the national level as well as at the international cooperation level."

As expressed by the members of the task team during its first meeting, the new IOC CD strategy should focus on the new context created by the Ocean Decade objectives and challenges. This was also recognized in the survey where Ocean Decade Challenge 2 (*Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social, and climate conditions*) and Ocean Decade Objective 3 (*Increase the use of ocean knowledge and understanding and develop capacity to contribute to sustainable development solutions*) were identified as areas of particular interest by the survey respondents.

Capacity development actions during the Ocean Decade will contribute to the implementation of international agreements and frameworks, notably capacity building and transfer of marine technology targets of a new international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. A new strategy will also include a focus on transforming scientific knowledge to information read by decision makers.

The Ocean Decade offers a unique opportunity to implement capacity development programmes as a major support to the resilience of the Ocean to changes. Capacity development needs of countries will be central in developing most of Ocean Decade programmes and projects through the development of tailored regional and national initiatives. 'Leaving no one behind' could provide the impetus to standardize access to data, information, and technologies regardless of geography, social economy, age or gender.

4.2 STRATEGIC FRAMEWORK

The capacity development approach developed in the strategic framework (Implementation Plan) of the Ocean Decade builds on the current IOC Capacity Development Strategy 2015–2021, which itself was developed following an analysis of the capacity development plans and strategies of partner UN agencies. As such, the principles, expected outcomes and priority activities in the Ocean Decade CD chapter closely align with the outputs and activities in the current IOC CD Strategy. Nevertheless, there are several substantial elements in the Ocean Decade CD Chapter that require consideration when revising the IOC CD Strategy.

If we compare the CD Chapter of the Ocean Decade IP and the IOC CD Strategy, several differences emerge as described below and in [Table 1](#).

Output 1. Human Resources developed

The key to bridging the technology and the economic gaps between developed and undeveloped countries is human development, which is often the objective of the economic development agenda through the reduction of inequalities, the building of resilient communities, and the eradication of all forms of poverty (UNCTAD, 2020²). Human development is often a neglected

² UNCTAD (2020). *The Least Developed Countries Report 2020: Productive Capacities for the New Decade*. United Nations publication. New York and Geneva.

agenda in most undeveloped and LDCs. Therefore, human skills are paramount through education, training, and all other productive capacities, including infrastructure, institutions, and policies.

ICT and digital technologies will strongly impact the development of future productive capacities of all countries. However, access to digital technologies and the Internet remains restricted to a minority of LDCs. Population and gender divides are also wide. This remains a major hindrance in developing productive capacities in these countries and advancing their structural transformation.

The Ocean Decade CD efforts will focus on, but will not be limited to, LDCs, SIDS and LLDCs. Specific approaches for these beneficiaries will be required including the use of low-bandwidth / low-technology tools in areas where access to digital telecommunications is limited. The resource needs for LDCs, SIDS and LLDCs to participate in capacity development efforts will be addressed as part of resource mobilization efforts.

Table 1. Comparison between the CD Chapter of the Ocean Decade IP and the IOC CD Strategy

CD CHAPTER OCEAN DECADE		IOC CD STRATEGY	
Desired Results	Priority Activities	Output	Activity
1. Human resources developed at individual and institutional levels	1. Academic and higher education opportunities including through online and distance learning	1. Human resources developed	1.1 Academic (higher) education including e-learning such as through online and distance modes
	2. Continuous professional development		1.2 Continuous professional development through organization of training courses and learning activities, including training of trainers
	3. Sharing of knowledge and expertise including through community building		1.3 Integrating ocean science in basic education curricula
	4. Training, including training of trainers		1.4 Sharing of knowledge and expertise/community building
	5. Integration of ocean science in curricula in primary and secondary schools including information on ocean science careers		1.5 Improving generational, geographic and gender balance
	6. Actively improving gender, generational and geographic diversity		
2. Access to technology and physical infrastructure established or improved	2.1 Facilitating access to technology and infrastructure (e.g. research facilities, instruments, research vessels, high power computing, digital telecommunications)	2. Access to technology and physical infrastructure established or improved	2.1 Facilitating access to infrastructure (facilities, instruments, vessels, etc.)
	2.2 Developing skills to lead and participate in technology and infrastructure development		2.2. Developing skills on access and use of digital technology, computing and other ICT including low-bandwidth technology
	2.3 Promoting technical and technological cooperation and peer to peer exchange between stakeholders		2.3. Promoting cooperation with stakeholders and civil community

<p>3. Global, regional, and sub-regional mechanisms strengthened</p>	<p>3.1 Identifying specific national and regional capacity development needs through needs assessments</p> <p>3.2 Strengthening existing national and regional resources and networks for capacity development</p> <p>3.3 Supporting regional and sub-regional organisations to be leaders in, and amplifiers of, capacity development</p>	<p>3. Global, regional and sub-regional mechanisms strengthened</p>	<p>3.1 Further strengthening and supporting secretariats of regional commissions</p> <p>3.2 Enhance effective Communication between regional sub-commission secretariats and global programmes as well as other communities of practice (incl. other organizations)</p>
Desired Results	Priority Activities	Output	Activity
<p>4. Development of ocean research policies in support of sustainable development promoted</p>	<p>4.1 Supporting identification of ocean research priorities</p> <p>4.2 Supporting development of national marine science management procedures and national policies</p>	<p>4. Development of ocean research policies in support of sustainable development objectives promoted</p>	<p>4.1 Sharing of information and support identification of ocean research priorities</p> <p>4.2 Developing national marine science management procedures and national policies</p>
<p>5. Awareness and understanding increased, and exchanges facilitated on role and values of ocean</p>	<p>5.1 Ocean literacy initiatives</p> <p>5.2 Informal education including through museums, zoos or aquariums</p> <p>5.3 Public information and communication (refer Section 2.7 for more detail)</p>	<p>5. Visibility and awareness increased</p>	<p>5.1 Public Information</p> <p>5.2 Ocean Literacy</p> <p>5.3 Informal education and citizen science</p> <p>5.4 Access to open source and digital products</p>
<p>6. Sustained, long-term resource mobilization reinforced</p>	<p>6.1 Mobilizing in-kind and financial support for capacity development initiatives as part of the Decade (refer Section 3.2 for more detail)</p>	<p>6. Sustained (long-term) resource mobilization reinforced</p>	<p>6.1 In-kind opportunities</p> <p>6.2 Financial support by MS to IOC activities</p>

Both documents include human resources as one of the outputs, since it is important to develop, at individual and institutional levels, the very foundation required for any research or management activity. On priority activities, however, the Ocean Decade IP includes new elements that were not in the current IOC CD Strategy. These refer to online and distance learning, proven critical under the COVID-19 pandemic, training of trainers, integration of ocean science in curricula in primary and secondary schools, including information on ocean science careers, and actively improving gender, generational and geographic diversity.

Output 2. Access to physical infrastructure established or improved

Both documents include the need for substantive infrastructure in ocean research and observation including research vessels, scientific instruments, buildings, commodities (appropriate internet broadband, sustained electricity supply), etc. Technology is a focus that needs to be added in the IOC CD Strategy including: high power computing and data storage facilities, digital telecommunications, etc.; skills building for leadership in technology and infrastructure development; and promoting technical and technological cooperation, and peer to peer exchange between stakeholders.

Also, as proposed in the Ocean Decade IP, there is a need for low-bandwidth / low-technology tools in areas where access to digital telecommunications is limited.

Output 3. Global, regional, and sub-regional mechanisms strengthened

The call for Decade actions that are transformative requires strengthening global, regional and sub-regional mechanisms which are essential to enhance close interaction and communication among global and regional and subregional programmes. The Ocean Decade IP raises their profile to be leaders and amplifiers of capacity development as a requirement for successful programme implementation and capacity development. This is an important element to scale-up and accelerate CD efforts that may be considered in the revision of the IOC CD Strategy.

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 research that builds understanding of ocean processes, helps identify possible solutions to critical challenges, and provides the knowledge needed to catalyze transformational changes in human behaviour for sustainable development.

Output 5. Awareness and understanding increased, and exchanges facilitated on role and values of ocean

While both documents include outputs on visibility and awareness, the current IOC CD Strategy may need to include an emphasis on exchanges facilitated on the role and values of the ocean, as stated in the Ocean Decade IP and including informal education through museums, zoos or aquariums.

Output 6. Sustained, long-term resource mobilization reinforced

This is the most similar output among the six outputs in both documents. The new IOC CD strategy may nevertheless need to explore this part more in the context of networks, partnerships and collaboration, optimizing opportunities for cooperation and exchange as a pillar of the Ocean Decade Actions.

4.3 ADDITIONAL PERSPECTIVES

While no country has been spared from the COVID-19 crisis, the least developed countries (LDCs), Small Island Developing States (SIDS) and land-locked developing countries (LLDCs) are the most vulnerable countries in the world to the impact of the pandemic due to their inherent development deficits, further exacerbating their vulnerability to climatic shocks.

The immediate impact of the COVID-19 pandemic on poverty rates in the countries which were already accounting for a rising proportion of the world's extreme poor, was assessed according to different poverty lines (UNCTAD, 2020). It is, estimated that the downward growth due to pandemic outbreak will drive an additional more than 32 million people into absolute poverty in LDCs and SIDS. These communities deserve a plan of capacity developed focused on developing productive capacities for their successful structural transformation, to shape a better and more resilient and inclusive future for the world's poorest countries.

The pandemic sets international development cooperation at the heart of reducing risk, preventing economic devastation and building resilience of vulnerable countries. Since the United Nations is committed to leave no one behind, the heart of the UN Decade of Ocean Science for Sustainable Development is not to leave any country behind, especially the most vulnerable. The Ocean Decade Capacity Development strategic framework cuts across geographies and across the land-sea interface. It includes but is not limited to LDCs, SIDS and LLDCs. In this context, the Ocean

Decade Implementation Plan (IP) critically depends on global capacity building and resource-sharing between countries at different levels of wealth and development. The enormous need for more ocean information at the scientific, governmental, private sector, and public levels demands a step-change in ocean education at all levels.

5. OUTCOMES OF THE 2ND CD NEEDS ASSESSMENT SURVEY

The vision contained in the IOC CD Strategy 2015–2021 identifies capacity development as the primary catalyst through which IOC will achieve its four HLOs in the current IOC Medium-Term Strategy 2014–2021. It enables 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.

In pursuant to decision IOC-XXX/11.1 of the IOC Assembly in June 2019, IOC issued Circular Letter 2803 on the 1st September 2020 to invite the IOC Groupe of Experts on CD to continue its work on regularly assessing the capacity development requirements of Member States and launched the second CD Needs Assessment Survey.

This CD Needs Assessment Survey was prepared by the IOC GE-CD and was designed to assess the capacity development requirements of member countries, specifically, but not only, SIDS and LDCs, in order to contribute to the implementation plan and reviewing of the IOC CD Strategy, 2015–2021 (<http://www.ioc-cd.org/cdstrategy>).

This survey was open to a broad range of stakeholders in ocean research, observation, data/information management, coastal area-based management and policy including the private sector. In particular:

1. IOC contacts (IOC Focal Points, IOC CD Focal Points)
2. Ocean researchers and research service providers (including heads of institution, data centre staff)
3. Academic staff (Higher Education Institution lecturers as well as Learning Services Provider staff)
4. Students (at Higher Education Institution)
5. Local government officials (including councils, national park authorities)
6. National government officials
7. Policymakers (senior government officials)
8. Industry (using, extracting and/or developing ocean resources)
9. Private sector operating in coastal zone (e.g. hoteliers, developers)
10. NGOs (environmental).

5.1 RESULTS

The survey received 1004 responses, from 118 countries, as of February 1st, 2021. Most of the respondents answered the survey on personal capacity (72%) while 21% were official representatives; 4% were IOC Focal Points, 1% 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 (24%), 16% national government officials, and 10% students, while the rest of the groups were below 10%.

Of the 9096 emails that were sent to the members listed in the Ocean Experts database from the 115 developing country Member States targeted for this survey, only 902 responses were received, i.e. only about 11% response rate, notably below 29% average for online surveys. Only 20

responses were received from a total of 115 IOC Focal Points and only 9 responses were received from IOC CD Focal Points. 61% of responses came from male, while 37% from female.

5.2 INITIAL FINDINGS

What can be drawn from the survey results analysis is the strong expression of a need for capacity enhancement all across the board, as indicated by the few scores given below a weighted average of 4.0 (see [Annex I](#)). Due to the relatively small sample size, especially IOC Focal Points and CD Focal Points group, care must be taken when interpreting results and making assumptions based on the weighted average.

Essential needs in terms of human, material and infrastructure resources

Q1) Please rank the most capacity development needs to build ocean science capacity (currently not available) in your country: In terms of the most critical capacity development needs to build ocean science capacity, the results differ across regions. In Africa for example, the top CD needs point to 'ocean science sampling equipment and instrumentation', in LAC was 'access to high power computing', in the Others group was funding and investment, while 'legal frameworks, regulation and enforcement' was ranked top in WESTPAC. It can be seen that the CD Focal Points group also shares pretty much similar CD needs with the ranking by IOC Focal Points group. For the personal group, however, it is worth noting that their ranking, somehow differs from those of the 'official focal points group', as their top ranking was concentrated in 'funding and investment', similar to representatives of organization group, followed by 'ocean observation *equipment (buoys, AUVs, tide-gauges etc.)*.'

Q2) How important are the following in terms of developing capacity in human resources (currently not available) in your country? In terms of developing capacity in human resources, *The establishment of an internship/fellowship programme* was considered the most important, followed by *continuous professional development throughout the career* and *access to on-board, research vessel-based training* across regions and groups. This one becomes particularly important since on board experience is a prerequisite to conclude some undergraduate courses.

Q3) In your opinion, how important are the following in terms of increased access to physical infrastructure for your country? In terms of increased access to physical infrastructure, *provision of new equipment by donors to your institution/organization* was considered the most important shared with several regions, followed by *organizing shared access to regional scientific research infrastructure* and – scale-up the *best practices on the use and maintenance of physical infrastructure and equipment*. While these were shared with IOC Focal Points and CD Focal Points groups, the personal and representative groups heavily favored different items as top CD needs which were '*training on the use and maintenance of physical infrastructure and equipments*', followed by '*Access to best practices on the use and maintenance of physical infrastructure and equipment.*'

Q4) If applicable, to what extent does the following help your country with regards to strengthened coordination with global, regional or sub-regional IOC communities and local networks? With regard to strengthened coordination with global, regional or sub-regional IOC communities and local networks, *Establishing an effective coordination and communication mechanism* between first, the regional sub commissions, and second, the regional sub commissions and the global programmes, were considered important. Reinforced budgeting of regional sub-commissions was also a priority.

Q5) In your opinion, how useful are the following in terms of development of ocean research policies in support of sustainable development in your country? In terms of development of ocean research policies in support of sustainable development, all items were considered important, with emphasis on *sharing information on existing ocean research priorities among government and other organizations*.

Q6) In your opinion, how useful are the following in terms of increasing visibility and awareness of ocean research in your country? Regarding the increasing visibility and awareness of ocean research, all items were considered important, with emphasis on *assistance with the development of national marine science management procedures and national policies* which was commonly ranked across regions and groups.

Q7) In your opinion, how useful are the following in terms of mobilising sustained (long-term) resources in your country? Regarding mobilizing sustained (long-term) resources, *financial resource mobilization* was considered more important than *increase in in-kind support*.

Ocean Decade Challenges and Objectives

Q12) In the context of the UN Decade of Ocean Science for Sustainable Development for which of the following Ocean Decade Challenges are capacity development needs greatest in your country? In the context of the Ocean Decade Challenges relevant to capacity development needs, in general, the importance of each challenge is in balance. For Africa, the top three challenges were 4, 6 and 7. The ranking for personal group, across all regions, was different however, with *Challenge 2 Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social and climate conditions*, at the top.

Q13) In the context of the UN Decade of Ocean Science for Sustainable Development for which of the following Ocean Decade objectives are capacity development needs greatest in your country? In the context of the Ocean Decade objectives, all the objectives were considered highly relevant to the CD Strategy, with emphasis on objective #3 *Increase the use of ocean knowledge and understanding and develop capacity to contribute to sustainable development solutions*.

5.3 ADDITIONAL PERSPECTIVES

In terms of other specific support to be provided by IOC global and regional programmes (GOOS, IODE, MPR, tsunami, etc.) to contribute to addressing CD requirements of Member States, the responses highlighted the following:

- Wide dissemination of CD-related events.
- More engagement with partners and stakeholders for data mining.
- Ocean Observing national programmes.
- Support to the installation of sea level monitoring equipment and address the need to attend more training, workshop and meetings concerning tsunami and other coastal science.
- Raising global profile of need and delivery of marine science and marine resource data at UN Conventions and agreements (SDGs, CBD, UNFCCC, IPBES, etc.), to convince national governments of the need to support marine science, especially applied marine science at the national level.
- Ocean Policy. Some countries still lack an Ocean Policy, on the eve of the Ocean Decade of Ocean Science for Sustainable Development that started in January 1st, 2021. Other socio-economic ills and the current COVID-19 pandemic do not place ocean science or the Ocean Decade in the government's top agenda.
- Need for own CD Strategy, to be inspired on the IOC CD Strategy. And with the assistance of IOC/IODE.

It has also been clearly identified the need to develop an overall Implementation Plan, for the IOC CD Strategy (<http://www.ioc-cd.org/strategy>), aligned with the Ocean Decade Implementation Plan.

Suggestions to include other CD efforts and support, include:

- a paragraph dedicated to traditional knowledge.
- The availability of on-ship training delivered in country using national and NGO oceangoing vessels to train marine scientists while undertaking surveys of their waters.
- Despite the great job done so far by the IOC, this needs to be complemented by a national effort towards deriving the maximum benefit from the assistance and training received, to enable reaching full autonomy.
- History of the IOC and IOC CD Best Practice in international cooperation: strengthen the Best Practices concept in CD activities at national level.
- Since ocean observation is very expensive, successful collaboration need be introduced particularly showing the successful indicator for supporting the collaboration.

Concerning changes to be made to the IOC CD Strategy for the period 2022–2026 (or 2030), the responses included the following:

- Alignment with the objectives, challenges, and societal outcomes of the Ocean Decade, with special regards to social sciences and traditional knowledge.
- Clearer links between CD and global reporting needs that would enable developing countries gain access to necessary resources and training.
- Develop in all aspects the recommendations of the current strategy, to detect changes and reflect them in the strategy by 2026 or 2030, including the development of an Implementation Plan.
- Develop the cooperation research for marine science and Increase partnerships and enlightenment.
- Synchronize and harmonize with the Ocean Decade, without discarding current outcomes and activities that are still relevant.

5.4 RECOMMENDATIONS

As stated in the 2nd TT Meeting Report (see Section 2), the results of the ranking by each region on their respective capacity development needs from the leadership perspective of IOC National Focal Points group, differ across regions. In Africa for example, the top CD needs point to ‘ocean science sampling equipment and instrumentation’, in LAC was ‘access to high power computing’, in the Others group was funding and investment, while ‘legal frameworks, regulation and enforcement’ was ranked top in WESTPAC. It can be seen that the CD Focal Points group also shares pretty much similar CD needs with the ranking by IOC Focal Points group. For the personal group, however, it is worth noting that their ranking, somewhat differs from those of the ‘National Focal Points group’, as their top ranking was concentrated in ‘funding and investment’, similar to representatives of the organization group, followed by ‘ocean observation equipment’.

The lack of response by IOC National Focal Points is a serious concern and the group was urged to explore more ways to reach out to countries to get more responses and reach statistically significant results. Nevertheless, there were some valuable results that can be gathered from the initial analysis, including the need identified for specific training including ship-based that require hands-on scientific training.

The TT members shared the view that, though limited, the results revealed important issues regarding poor linkage between focal points and target communities. The difference between individual needs expressed and those reported by National Focal Points revealed a disconnect between the views of scientists and researchers and those of higher-level officials.

The Task Team recommended to continue reaching out to countries to gather more responses and gain more statistically significant results. A reanalysis once there are more National Focal Points and CD Focal Points who provided national responses can be done after several months and the results can be revisited.

6. CONSULTATIONS WITH GLOBAL AND REGIONAL PROGRAMMES AS WELL AS UN SPECIALIZED AGENCIES, NON-UN IGOs, GLOBAL AND REGIONAL PROJECTS, NGOS, PRIVATE SECTORS, ETC.

As agreed in the Task Team's first meeting, email requests were sent to global and regional programmes as well as other UN specialized agencies, non-UN IGOs, Global and Regional organizations, programmes and projects, NGOs and private sector partners, taking into account their CD strategies and programmes through a set of questions that may inform the GE-CD Task Team of the possible gaps, potential addition/removal of elements and other considerations in the revision of the IOC CD strategy.

The following questions/issues were submitted to the groups for their responses, which were consolidated in [Annex II](#) and [Annex III](#).

Out of 12 consultations emails sent, six global and regional programmes sent their responses to the following questions:

1. To what extent did your global programme /regional subsidiary body implement the IOC Capacity Development Strategy 2015–2021?
2. What is your global programme /regional subsidiary body experience so far with the current IOC CD strategy?
3. Have you, as global programme /regional subsidiary body, experienced any difficulty in implementing the current IOC CD Strategy?
4. What are the possible gaps that you, as global programme /regional subsidiary body, have identified in the current IOC CD Strategy, particularly taking into account the Decade objectives and expected outcomes?
5. Are there any elements that you, as global programme /regional subsidiary body, want to propose as additional components in the revision of the IOC CD Strategy? Please justify.
6. How should the IOC CD Strategy contribute to the Decade and its Implementation Plan?
7. What are the most important global ocean science developments in addition to the UN Decade of Ocean Science for Sustainable Development that the updated IOC CD Strategy should recognize and respond to?

Out of 35 consultation emails sent, ten specialized agencies, non-UN IGOs, Global and Regional organizations, programmes and projects, NGOs and private sector partners sent their responses to the following questions:

1. Does your organization have a Capacity Development Strategy (or programmes) in place? If yes, please provide the URL or links to relevant information.
2. What CD outcomes related to ocean science from your CD strategy/programmes are interoperable with the outcomes in IOC Capacity Development Strategy and the Decade?
3. What types of related capacity development activities/programs does your organization carry out?
4. What are the possible gaps that you have identified in your CD strategy/programmes that can be addressed in collaboration with the IOC?

5. Are there any elements that you think are critical components that should be added in IOC CD strategy to address similar targets with your organization?
6. How can your organization's CD strategy/programmes contribute to the Decade and its implementation plan?
7. What are the most important global ocean science developments in addition to the UN Decade of Ocean Science for Sustainable Development that the updated IOC CD strategy should recognize and respond to?

Comments and suggestions from global and regional programmes, UN specialized agencies, NGOs, etc. include a long list of references to specific CD initiatives that are to some extent related to the IOC CD Strategy and to the Ocean Decade. Hereafter, responses were merged and summarized to be incorporated or taken into account in the new IOC CD Strategy.

6.1 GENERAL COMMENTS

As a general principle, it is important to highlight long-term CD sustained strategies. CD benefits from coordinated and merging initiatives that are able to allocate financial resources in the long-term and with coherent, integrated objectives. In essence, dispersed short-time efforts, although valuable, are considered much less efficient. This perspective strikes at the necessity for long-term funding frameworks, which are particularly difficult to implement.

Another cross-cutting comment is the need to develop mechanisms for monitoring, evaluation and learning to assess the quality and impact of the capacity development activities. This includes also mapping out present CD activities and identifying gaps that need to be addressed (e.g., in polar regions). These mechanisms would benefit from coordinated approaches between different organizations (see below).

It is also emphasized that CD strategies and initiatives must strengthen existing national and regional resources and networks for capacity development. They must work with and make use of national training institutes and universities, fostering the adaptation of new knowledge into existing curricula and avoid creating new, external initiatives, which although valuable, may compromise existing national CD capacities.

CD will also be better achieved through partnerships between developed and SIDS and LDCs, for instance, to redress infrastructural gaps and to realize the socio-economic benefits of ocean observing systems at global and regional scales.

As it is clearly stated in the Ocean Decade IP, the 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. Sustainable resource management requires an understanding of the seas and our use of them via an integrated system which merges the natural and human aspects. Therefore, conceptual frameworks that integrate human and social sciences into holistic assessments of the marine environment are required.

Finally, it must be ensured that global challenges such as climate change, biodiversity and habitat loss, and their impact on marine resources and services need to be central in CD strategies and initiatives.

Also, there is a need to remove barriers to full gender and geographic diversity, and guarantee equitable access to ocean knowledge, ocean-related education, training, and transfer of marine technology. In addition to these general comments there were other issues that clearly emerged in the comments and that are summarized below.

6.2 CD IN POLICIES AND DECISION-MAKING

CD oriented towards policymakers must be a priority, being a first step to enable the further development of general CD strategies. CD guidelines must refer to the need for long-term sustained strategies in capacity development, both at national level and for international coordination. The lack of long-term sustained strategies, not only funding, is understood as a main factor hindering the success of capacity development. Although funding is important, other aspects such as the high rotation in personnel representing or responsible for the coordination at national level (e.g. Tsunami National Contacts) frequently hamper the effectiveness of capacity development actions.

Further, the policy-science interface is essential for the development and implementation of legal and institutional ocean governance frameworks in which science is a central component. Policy-oriented CD must incorporate a clear awareness of the socio-economic benefits derived from products and services provided by the ocean. Marine spatial planning, integrated coastal zone management schemes, marine protected areas, and ocean management in general must be based on scientific knowledge. It is therefore crucial that policymakers have a clear understanding of this dependency as a first step to develop robust CD strategies at national level.

CD for policymakers must help to support Member States in their implementation of the SDGs and other key UN processes that will rely on sound marine science to inform decision making in the next Decade (e.g. BBNJ, CBD post-2020 global biodiversity framework).

6.3 SIDS, LDCs AND LLDCs

Although SIDS, LDCs, and LLDCs are already a priority in the IOC CD Strategy, this role has to be more specific and reinforced by:

- Strengthening the science-policy interface through the development and/or delivery of decision-making support tools and inclusive stakeholder's engagement processes for evidence-based policy and trade-offs development, consensus building and integrated solutions.
- Encouraging policies to promote technological upgrading; strengthening science and technology and increasing investment in basic and related research facilities / institutions are central and priorities for the future sustainability of these countries.
- Strengthening and highlighting the key role of marine science, as essential to deliver the tools needed to tackle the root causes of existing vulnerabilities and to identify climate and ocean environment-related security risks faced in coastal areas, in particular by SIDS.
- Promoting synergies between the UN Decade of Ocean Science for Sustainable Development and the UN Decade for Ecosystem Restoration. Ocean science informs coastal ecosystem restorations, and in that context, the unique vulnerabilities of SIDS should be recognized.

6.4 COOPERATION AND MERGING WITH CD STRATEGIES IN OTHER UN ORGANIZATIONS, REGIONAL AND NATIONAL INSTITUTIONS

Science is an integral part of legal and institutional ocean affairs at all scales of governance. Therefore, other UN organizations, regional and national institutions that have general or specific interests in the ocean, frequently include ocean science in their CD strategies.

Consequently, it is extremely important to establish a high degree of coordination between CD strategies of UN organizations, supported by broader participation of Member States, to avoid duplications and ensure synergies of activities, partnerships and resources, including expertise and infrastructures. Furthermore, this coordination has to be carried out, not only at the global level, but also, and very importantly, between the regional programmes, sub-commissions or regional

committees and activities and down to the national level. This coordination should evolve to strategic partnerships in capacity CD to ensure robust, long-term CD strategies and programmes and must include the large variety of issues already considered in the IOC CD Strategy and the ones suggested in this document (data management and data access, scientific methodologies, ocean observation, policy-maker oriented CD, SIDS and LDCs priority, gender, traditional and indigenous knowledge, etc.).

Examples of this coordination already exist (e.g. JBC, between IOC and WMO, LOA between OBIS, GOOS and MBON), but have to be reinforced (e.g. WMO and IOC developing core packages for regional needs) and extended to other programmes focused on marine science in different organizations (e.g. IMO-GESAMP working groups).

Furthermore, taking into account the role of marine science to promote sustainable development, the CD strategy has also to be aligned with initiatives and programmes related with ecosystem management (e.g. with the CBD post-2020 global biodiversity framework, the UN System of Environmental-Economic Accounting Ecosystem Assessment, GeoParks, Biosphere reserves and World Heritage sites), sustainable development (e.g. coordination between UNESCAP and WESTPAC, or alignment of the IOC CD Strategy with the Sustainable Development Cooperation Framework) or by assisting countries in building their ability to collect, manage, analyze, and use data of different sources (e.g. in cooperation with the UN Department of Economic and Social Affairs and National Statistical Offices).

Finally, two cross cutting aspects must be faced on the coordination of CD strategies:

- Connection with the private sector on partnering training opportunities.
- Enable multi-donor arrangements.

6.5 GENDER, TRADITIONAL ACTIVITIES AND INDIGENOUS HERITAGE

The role of gender, of traditional and indigenous knowledge and social inclusion, in general, must be reinforced in the IOC CD Strategy. This includes:

- Engaging indigenous peoples and incorporating their rights, interests, ocean information needs and valuable traditional knowledge in ocean observation efforts and related policies in ocean governance,
- Social inclusion. Ensuring the needs of disadvantaged social groups such as indigenous peoples, persons with disabilities, older persons, youth and women are understood and addressed by removing barriers to full gender, generational, and geographic diversity, and ensure an equitable and accessible ocean for all.

6.6 DATA STORAGE, MANAGEMENT AND ACCESS

Advances in data and information management are a core element of the Ocean Decade. Science knowledge, but also ocean management policies such as Marine Spatial Planning, rely on data. end-users of ocean knowledge (from the scientist themselves to policymakers) must easily find, access, combine, analyze and reuse the data.

Data access is generally included in global strategic plans and global policies. However, less attention is devoted (including in the IOC CD Strategy) to support the creation and maintenance of interoperable maritime datasets at national level and their interoperability at the national context. It is necessary that SIDS and LDCs have open access to data generated by developed countries, but it is as crucial that they are able to appropriately manage the data they produce. This is essential to develop scientific knowledge for their own use, to support the management of their ocean products and services and to downscale the understanding and management of global processes, such as ocean and climate change.

Therefore, CD Strategy must:

- Support the creation and maintenance of interoperable maritime datasets in cooperation with other International/Intergovernmental Organizations.
- Develop, in collaboration with other International/Intergovernmental Organizations, interoperable and open-access data platforms and services.
- Identify and rescue data and information that are not available on digital platforms and therefore may be at risk of being lost.

All these components aim to further a common and standardized international approach to the sustainable knowledge of the oceans as part of CD strategies.

Further, recent developments in ocean observation initiatives are creating a demand for novel means of data management, storage and access, to serve the needs of different audiences, and these need to be incorporated in CD strategies. Development of unmanned and autonomous sensor platforms, for example, will facilitate a huge increase in 24/7 operations worldwide with more sensors at lower cost, although generating huge amounts of data will require increased big data processing and storage capacity.

6.7 COVID-19 AND CHANGES IN COMMUNICATION AND CD

Since the beginning of 2020, most of the countries of the world, even rural and island areas, have been affected by the Coronavirus pandemic, almost all of which have implemented lockdown and social distancing, leading to the cessation of activities claiming human interactions. As such, the mandatory use of digital technologies and broadband web links are now critical as new ways of working and communication.

These technologies have been incorporated to allow CD initiatives to continue during the COVID-19. E-learning will never fully replace on-location education or practice but it provides opportunities to reach those that otherwise might not be educated at all. On-line technologies and virtual communication need to be incorporated into the next generation of CD strategies and opens the opportunity to explore better ways of training. Developing e-learning capabilities should therefore be part of any CD strategy. The IOC Ocean Teacher Global Academy is already adapting its courses to meet these new challenges.

6.8 OTHER GENERAL RECOMMENDATIONS:

- Establish a clear connection between national representatives at regional and global programmes (e.g. Tsunami National Contacts) and the National UN Decade of Ocean Science Coordination mechanism.
- Simplified substantive and financial reporting.
- Establish hand-in-hand initiative with national stakeholders and civil society organizations that use data, infrastructure, and science-based approaches to determine where and how to target capacity development measures to have the greatest impact on society.
- Expanding international development cooperation to ensure that vulnerable countries' economies are able to enhance their healthy response to the overall academic aspect, while maintaining food security and avoiding environmental crises.

7. OVERALL RECOMMENDATIONS

The results of the Task Team's review to inform the rationale for revising the IOC CD Strategy laid out vital elements that need to be incorporated in the revised IOC CD Strategy, so that it provides the kind of capacity development required in the Ocean Decade.

The appropriate form and structure with an ideal length enough to entice target audience to read through the document should be taken into consideration when designing the revised IOC CD Strategy.

The Task Team recommends 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. 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.

It should also be 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. One possibility could be perhaps, besides the CD Strategy document, to create also a short policy brief incorporating the key messages for a wider outreach.

ANNEX I

SURVEY PRELIMINARY RESULTS

As of 1 February 2021, a total of 1004 responses were received from 118 countries. The gender breakdown is 61% male, 37% women, and rest prefer not to say. 72% of the respondents answered on personal capacity, while 21% were official representatives; 4% IOC Focal Point, 1% CD Focal Points and 2% for 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 (24%), 16% national government officials, 10% students, while the rest of the groups were below 10%.

Of the 9096 emails that were sent to 115 developing country member states, targeted for this survey, only 902 responses were received or only about 11% response rate, notably below 29% average for online surveys. No response was received from twenty six countries and no official response was received from 95 IOC National Focal Points. As shown in the summary table with response rate per country, which was based on their ocean experts records to the number of responses received, blue cells were those which has less than 10% response rate and red highlighted cells were countries with 0 response. The four regions include Africa, LAC, WESTPAC and even though most of the PSIDS countries also belong to WESTPAC, they were grouped separately to be able to look at their specific needs. Unfortunately, due to low responses from PSIDS group, it was not possible to generate statistically significant results as representative of the group. The rest of the countries are under ‘Others’.

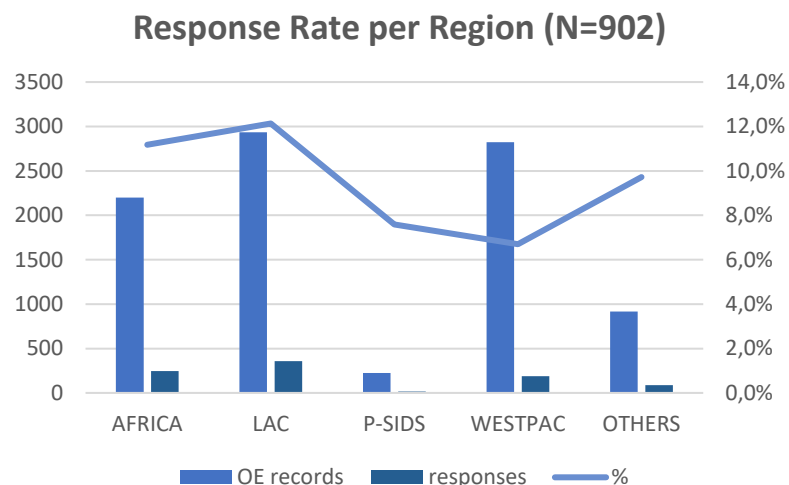


Figure 1. Response Rate per Region

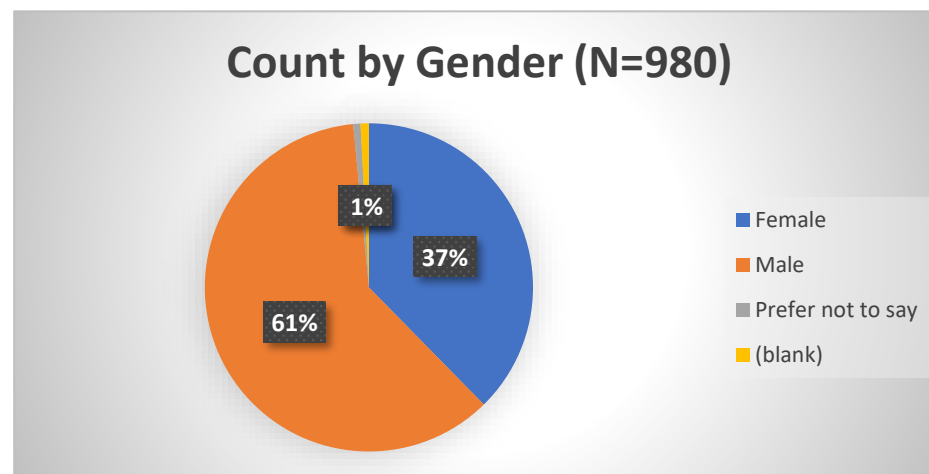


Figure 2. Gender Breakdown

The highlights of the regional analysis ranking are presented in four comparative tables. The first table refers to IOC national focal point group, the second table was CD focal point group, the 3rd table was on personal capacity group and the 4th table was on official representatives of organizations and institutions. As raised in the first meeting, the analysis used weighted average in looking at the priority capacity development needs of the region. So on a 5-scale standard, 5.0 results to the highest ranked, which were the darkest green cells followed by light green as indicated in the highlighted cells.

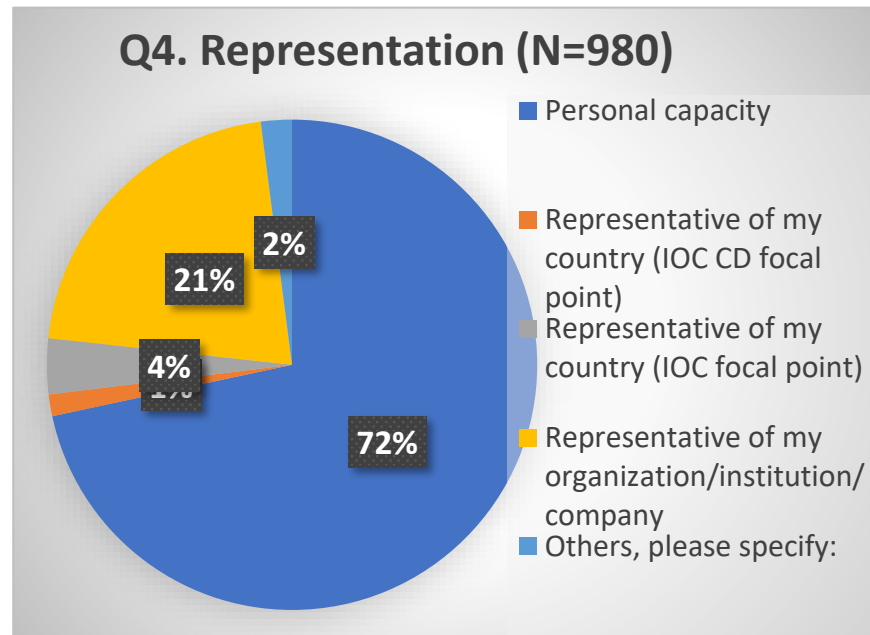


Figure 3. Designated capacity of individual submitting the response

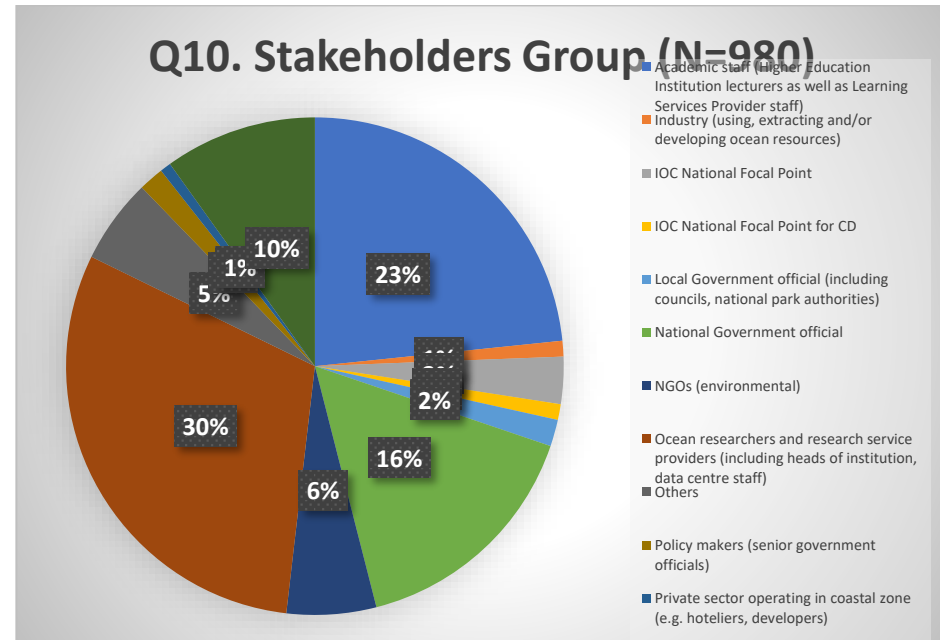


Figure 4. Stakeholders Group Breakdown

Q1. Please rank the most capacity development needs to build ocean science capacity (currently not available) in your country.

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Qualified ocean science professionals	4.22	3.80	3.50	3.00	
Research vessels and inshore boats	4.33	3.60	2.50	3.50	
Ocean observation equipment (buoys, AUVs, tide-gauges etc.)	4.33	4.20	3.50	3.50	
Ocean science sampling equipment and instrumentation	4.44	4.20	3.00	3.00	
Laboratory equipment and facilities	4.11	4.20	3.25	3.00	
Access to remotely sensed satellite data	4.22	4.40	4.00	3.00	
Access to regional and/or global data	4.33	4.40	3.75	3.00	
Digital infrastructure (computers, software etc.)	4.00	4.40	2.75	2.50	
Internet connectivity	4.33	4.20	2.75	2.00	
Access to high power computing	4.00	4.60	3.00	1.00	
Access to current scientific literature	4.11	3.80	2.25	2.00	
Membership/involvement in international ocean research communities	4.00	4.20	3.00	3.00	
Strengthened international partnerships and regional networks for collaboration	4.33	3.80	3.50	3.00	
Development of national ocean research policy	4.22	3.80	3.50	3.00	
Legal frameworks, regulation and enforcement	4.33	4.20	3.25	4.50	
Increased awareness, ocean literacy and public outreach	4.00	4.40	4.00	4.00	
Gender equality	4.22	4.40	3.50	2.00	
Funding and investment in ocean science	4.33	4.40	4.25	4.00	
CD to facilitate stakeholder engagement	4.33	4.20	3.75	2.00	
Access to communities of practice	4.33	4.40	4.00	4.00	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Qualified ocean science professionals	4.00	3.00	4.00	5.00	
Research vessels and inshore boats	3.67	3.00	4.00	5.00	
Ocean observation equipment (buoys, AUVs, tide-gauges etc.)	4.33	4.25	5.00	4.00	
Ocean science sampling equipment and instrumentation	4.33	3.75	4.00	4.00	
Laboratory equipment and facilities	4.00	3.25	2.00	5.00	
Access to remotely sensed satellite data	4.00	2.75	4.00	5.00	
Access to regional and/or global data	4.00	2.75	5.00	5.00	
Digital infrastructure (computers, software etc.)	3.33	3.75	5.00	5.00	
Internet connectivity	3.00	3.00	5.00	5.00	
Access to high power computing	3.00	4.50	5.00	4.00	
Access to current scientific literature	3.67	3.50	5.00	4.00	
Membership/involvement in international ocean research communities	3.33	2.25	4.00	4.00	
Strengthened international partnerships and regional networks for collaboration	3.67	3.50	5.00	5.00	
Development of national ocean research policy	4.33	3.75	4.00	4.00	
Legal frameworks, regulation and enforcement	3.33	2.75	4.00	5.00	
Increased awareness, ocean literacy and public outreach	3.33	4.75	4.00	4.00	
Gender equality	3.33	3.00	5.00	5.00	
Funding and investment in ocean science	4.33	4.25	5.00	5.00	
CD to facilitate stakeholder engagement	4.00	4.50	5.00	5.00	
Access to communities of practice	4.00	4.50	4.00	5.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Qualified ocean science professionals	4.23	4.01	4.28	4.13	4.67
Research vessels and inshore boats	4.14	4.30	4.32	4.07	4.67
Ocean observation equipment (buoys, AUVs, tide-gauges etc.)	4.47	4.54	4.52	4.16	4.67
Ocean science sampling equipment and instrumentation	4.36	4.45	4.44	4.16	3.67
Laboratory equipment and facilities	4.31	4.31	4.20	4.16	4.33
Access to remotely sensed satellite data	4.21	3.99	3.76	3.90	3.67
Access to regional and/or global data	4.09	4.18	4.04	4.06	3.67
Digital infrastructure (computers, software etc.)	4.07	3.91	3.76	4.00	3.00
Internet connectivity	3.93	3.64	3.00	3.78	3.67
Access to high power computing	3.87	3.85	3.08	3.91	3.33
Access to current scientific literature	3.87	3.64	3.36	3.80	4.67
Membership/involvement in international ocean research communities	3.97	4.01	3.76	4.03	3.67
Strengthened international partnerships and regional networks for collaboration	4.28	4.29	4.12	4.23	4.00
Development of national ocean research policy	4.08	4.42	3.96	4.26	4.33
Legal frameworks, regulation and enforcement	3.70	4.05	3.68	3.94	4.67
Increased awareness, ocean literacy and public outreach	3.93	4.31	3.88	4.17	4.00
Gender equality	3.69	3.85	2.72	3.48	4.00
Funding and investment in ocean science	4.52	4.74	4.44	4.38	4.67
CD to facilitate stakeholder engagement	3.74	3.93	3.28	3.97	4.00
Access to communities of practice	3.85	4.04	3.64	4.16	3.00

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Qualified ocean science professionals	4.25	4.04	3.88	4.17	
Research vessels and inshore boats	4.21	4.38	3.75	4.17	
Ocean observation equipment (buoys, AUVs, tide-gauges etc.)	4.29	4.50	3.88	4.28	
Ocean science sampling equipment and instrumentation	4.21	4.58	3.63	4.11	
Laboratory equipment and facilities	4.42	4.46	3.75	4.06	
Access to remotely sensed satellite data	4.42	4.00	3.63	4.22	
Access to regional and/or global data	4.38	4.00	3.38	4.06	
Digital infrastructure (computers, software etc.)	4.42	3.92	3.13	4.00	
Internet connectivity	4.17	3.81	3.13	4.22	
Access to high power computing	4.04	3.62	4.00	3.83	
Access to current scientific literature	4.33	4.00	3.50	4.00	
Membership/involvement in international ocean research communities	4.46	3.96	4.13	4.06	
Strengthened international partnerships and regional networks for collaboration	4.50	4.35	4.38	4.44	
Development of national ocean research policy	4.38	4.38	3.50	4.22	
Legal frameworks, regulation and enforcement	4.13	4.23	3.38	4.17	
Increased awareness, ocean literacy and public outreach	4.17	4.04	3.25	4.06	
Gender equality	3.88	3.38	2.88	3.56	
Funding and investment in ocean science	4.63	4.58	4.38	4.17	
CD to facilitate stakeholder engagement	3.83	3.85	2.88	3.83	
Access to communities of practice	3.92	4.15	3.38	4.00	

Q2. How important are the following in terms of developing capacity in human resources (currently not available) in your country?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Higher education degree (BSc-PhD) programmes in ocean science within your country	3.66	4.20	2.50	3.50	
Advanced professional development training courses (specific short courses, technical training etc.)	4.00	4.20	3.50	3.00	
Continuous professional development throughout your career	4.00	4.00	3.50	4.00	
Management training for senior researchers and heads of institution	3.78	4.00	3.75	4.00	
Establishment of consortia of higher education in your country or region	3.89	3.60	2.50	4.00	
Increased collaboration with UNESCO Chairs and IOC	4.22	4.40	3.00	3.50	
Establishment of an internship/fellowship programme	4.22	4.40	4.00	4.00	
Access to on-board, research vessel-based training	4.22	4.20	3.50	4.50	
Establishment of a visiting lecturer programme	3.78	4.40	2.50	4.00	
Establishment of regional training (and research) centres relevant to the IOC mandate	3.56	4.20	3.25	3.00	
Establishment of a mentoring programme	4.11	3.80	3.75	4.50	
Development of IOC alumni networks	4.33	3.40	4.25	4.50	
Establishment of “young scientist” awards	4.33	4.20	4.25	4.00	
Promoting gender equality and participation of women in ocean science research	3.78	4.20	3.00	3.00	
Sharing of training materials	3.89	4.20	3.50	4.50	
Establishment of a travel grant “fund”	4.22	4.20	3.50	4.50	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	4.33	2.25	5.00	5.00	
	4.33	2.75	5.00	5.00	
	4.33	3.75	5.00	4.00	
	4.00	3.75	5.00	4.00	
	3.67	2.50	4.00	4.00	
	4.67	3.75	4.00	5.00	
	5.00	3.25	4.00	4.00	
	4.67	3.25	4.00	5.00	
	3.33	4.00	4.00	5.00	
	4.33		5.00	5.00	
	4.33	1.75	4.00	5.00	
	3.33	1.75	4.00	5.00	
	3.00	4.50	4.00	4.00	
	3.67	2.60	5.00	4.00	
	3.33	3.75	5.00	5.00	
	3.67	3.50	5.00	5.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	4.14	3.69	3.88	3.94	5.00
	4.30	4.30	4.36	4.19	4.33
	4.24	4.26	4.08	4.26	4.67
	4.06	3.97	3.88	3.77	4.67
	3.86	3.86	3.52	3.72	4.00
	4.02	4.27	3.84	4.16	3.67
	4.17	4.30	3.96	4.33	5.00
	4.07	4.28	4.08	4.33	3.67
	3.59	4.08	4.00	3.94	4.67
	3.93	4.23	3.92	4.01	4.00
	3.97	3.98	3.78	4.10	3.67
	3.59	3.83	3.20	3.88	3.67
	3.87	3.88	3.78	3.83	4.33
	3.98	3.91	2.92	3.54	4.00
	4.08	4.07	3.80	4.09	3.67
	4.23	4.17	3.88	4.42	3.00

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	3.83	3.81	2.83	3.94	
	4.46	4.38	3.50	4.44	
	4.25	4.31	4.00	4.33	
	4.29	3.96	3.83	3.94	
	4.25	3.81	2.50	3.83	
	4.29	4.27	3.75	4.22	
	4.21	4.58	4.13	4.06	
	4.50	4.42	3.83	4.06	
	4.04	3.92	3.75	4.06	
	4.42	4.19	3.83	4.28	
	4.33	4.00	3.38	4.17	
	4.08	3.88	2.88	4.11	
	4.08	4.12	3.38	3.56	
	4.00	3.96	2.75	3.83	
	4.00	4.27	3.50	4.22	
	4.46	4.50	3.38	4.39	

Q3. In your opinion, how important are the following in terms of increased access to physical infrastructure for your country?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Establishment and maintenance of a register of regional scientific research infrastructure (facilities, instruments, vessels) to facilitate access	4.22	4.00	3.50	4.00	
Organizing shared access to regional scientific research infrastructure	4.22	3.60	3.75	5.00	
Provision of new equipment by donors to your institution/organization	4.22	4.20	4.00	1.00	
Provision of used equipment by donors or other institutions	3.67	3.80	2.50	1.00	
Organizing low-cost access to spare parts for equipment	4.33	4.00	3.75	3.50	
Training on the use and maintenance of physical infrastructure and equipment	4.11	3.80	3.75	2.00	
Access to best practices on the use and maintenance of physical infrastructure and equipment	3.89	3.80	3.75	2.50	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Establishment and maintenance of a register of regional scientific research infrastructure (facilities, instruments, vessels) to facilitate access	3.67	4.00	4.00	5.00	
Organizing shared access to regional scientific research infrastructure	4.00	4.00	4.00	5.00	
Provision of new equipment by donors to your institution/organization	3.33	4.25	5.00	4.00	
Provision of used equipment by donors or other institutions	3.00	2.75	2.00	4.00	
Organizing low-cost access to spare parts for equipment	3.33	4.00	5.00	5.00	
Training on the use and maintenance of physical infrastructure and equipment	3.33	4.00	5.00	5.00	
Access to best practices on the use and maintenance of physical infrastructure and equipment	3.67	4.00	5.00	5.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Establishment and maintenance of a register of regional scientific research infrastructure (facilities, instruments, vessels) to facilitate access	4.03	4.31	3.88	4.10	4.67
Organizing shared access to regional scientific research infrastructure	4.02	4.24	3.80	4.16	5.00
Provision of new equipment by donors to your institution/organization	4.00	4.19	3.80	4.19	4.67
Provision of used equipment by donors or other institutions	3.77	3.80	3.52	3.75	4.33
Organizing low-cost access to spare parts for equipment	3.66	4.15	3.40	3.97	4.33
Training on the use and maintenance of physical infrastructure and equipment	4.37	4.47	4.08	4.14	5.00
Access to best practices on the use and maintenance of physical infrastructure and equipment	4.24	4.38	4.08	4.16	5.00

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Establishment and maintenance of a register of regional scientific research infrastructure (facilities, instruments, vessels) to facilitate access	3.96	4.27	3.25	3.89	
Organizing shared access to regional scientific research infrastructure	4.21	4.38	3.38	4.00	
Provision of new equipment by donors to your institution/organization	4.17	4.62	3.38	3.72	
Provision of used equipment by donors or other institutions	3.83	4.23	2.50	3.39	
Organizing low-cost access to spare parts for equipment	4.21	4.54	3.00	3.83	
Training on the use and maintenance of physical infrastructure and equipment	4.21	4.69	3.50	4.11	
Access to best practices on the use and maintenance of physical infrastructure and equipment	4.17	4.69	3.88	3.78	

Q4. If applicable, to what extent does the following help your country with regards to strengthened coordination with global, regional or sub-regional IOC communities and local networks?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Improved staffing of secretariat of regional sub-commissions	4.00	4.00	3.25	2.00	
Reinforced budgeting of regional sub-commissions	4.22	3.60	4.25	4.00	
Establishing an effective coordination and communication mechanism between the regional sub-commissions	3.78	3.80	3.25	4.50	
Establishing an effective coordination and communication mechanism between the regional sub-commissions and the global programmes	3.78	4.40	3.50	4.50	
Establishing an effective coordination and communication mechanism between countries not covered by IOC regional subsidiary bodies and the global programmes	3.67	4.20	3.00	2.00	

CD Focal Points (N=9)

AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
4.33	2.50	4.00	5.00	
4.33	2.50	4.00	5.00	
4.33	2.75	5.00	5.00	
4.00	2.75	5.00	4.00	
4.00	2.75	5.00	4.00	

Personal (N=320)

AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
3.21	3.39	3.12	3.88	3.00
3.58	3.52	3.24	3.70	4.00
3.74	4.02	3.48	3.91	3.67
3.7	3.87	3.36	4.03	4.00
3.55	3.63	3.56	3.78	4.00

Org Representative (N=76)

AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
3.63	3.38	3.75	4.06	
4.04	3.96	3.75	3.94	
4.00	4.31	3.88	3.78	
4.00	4.31	3.13	4.11	
3.63	3.92	3.25	3.67	

Q5. In your opinion, how useful are the following in terms of development of ocean research policies in support of sustainable development in your country?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	4.11	4.40	4.50	5.00	
Assistance with the development of national marine science management procedures and national policies	4.33	3.40	4.25	4.00	
Support in methodologies for co-design processes to joint development of policies	4.33	4.20	4.00	4.00	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	4.33	4.75	5.00	4.00	
Assistance with the development of national marine science management procedures and national policies	4.00	3.75	5.00	5.00	
Support in methodologies for co-design processes to joint development of policies	3.33	4.50	5.00	5.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	3.94	4.35	4.12	4.30	4.67
Assistance with the development of national marine science management procedures and national policies	3.97	4.26	3.80	4.13	5.00
Support in methodologies for co-design processes to joint development of policies	3.64	4.17	3.68	4.26	4.67

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	4.50	4.31	3.88	4.39	
Assistance with the development of national marine science management procedures and national policies	4.54	4.31	3.63	3.94	
Support in methodologies for co-design processes to joint development of policies	4.00	4.35	3.75	4.00	

Q6. In your opinion, how useful are the following in terms of increasing visibility and awareness of ocean research in your country?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	4.11	3.80	4.25	4.00	
Assistance with the development of national marine science management procedures and national policies	4.33	4.20	4.75	4.00	
Support in methodologies for co-design processes to joint development of policies	4.33	4.40	3.75	4.50	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	4.67	4.25	4.00	4.00	
Assistance with the development of national marine science management procedures and national policies	4.33	5.00	5.00	5.00	
Support in methodologies for co-design processes to joint development of policies	4.67	5.00	4.00	4.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	4.05	4.51	4.08	4.33	4.33
Assistance with the development of national marine science management procedures and national policies	4.16	4.67	3.88	4.38	5.00
Support in methodologies for co-design processes to joint development of policies	4.00	4.23	3.88	4.16	4.33

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Sharing of information on existing ocean research priorities among government and other organizations	4.00	4.42	3.63	4.67	
Assistance with the development of national marine science management procedures and national policies	4.17	4.35	4.13	4.56	
Support in methodologies for co-design processes to joint development of policies	4.13	4.15	4.38	4.00	

Q7. In your opinion, how useful are the following in terms of mobilising sustained (long-term) resources in your country?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Assistance in fostering partnerships to increase in-kind support opportunities	4.11	4.60	4.25	5.00	
Assistance in financial resource mobilisation from Member States, Institutional and Private Sector Partners	4.44	4.40	4.50	5.00	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Assistance in fostering partnerships to increase in-kind support opportunities	4.00	4.50	5.00	4.00	
Assistance in financial resource mobilisation from Member States, Institutional and Private Sector Partners	4.00	4.50	5.00	4.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Assistance in fostering partnerships to increase in-kind support opportunities	3.81	4.09	2.96	4.10	3.67
Assistance in financial resource mobilisation from Member States, Institutional and Private Sector Partners	4.02	4.18	3.28	4.28	4.33

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
Assistance in fostering partnerships to increase in-kind support opportunities	4.08	3.85	3.63	4.11	
Assistance in financial resource mobilisation from Member States, Institutional and Private Sector Partners	3.83	4.31	4.00	4.22	

Q12. In the context of the UN Decade of Ocean Science for Sustainable Development for which of the following Ocean Decade Challenges are capacity development needs greatest in your country?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
CHALLENGE 1: Understand and map land and sea-based sources of pollutants and contaminants and their potential impacts on human health and ocean ecosystems, and develop solutions to remove or mitigate them.	4.33	4.40	4.50	4.00	
CHALLENGE 2: Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social and climate conditions.	4.22	4.40	4.25	4.00	
CHALLENGE 3: Generate knowledge, support innovation, and develop solutions to optimise the role of the ocean in sustainably feeding the world population under changing environmental, social and climate conditions.	4.22	4.40	4.00	4.50	
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.	4.44	4.40	4.00	4.50	
CHALLENGE 5: Enhance understanding of the ocean-climate nexus and generate knowledge and solutions to mitigate, adapt and build resilience to the effects of climate change across all geographies and at all scales, and to improve services including predictions for the ocean, climate and weather.	4.33	4.60	3.50	5.00	
CHALLENGE 6: Enhance multi-hazard early warning services for all geophysical, ecological, biological, weather, climate and anthropogenic related ocean and coastal hazards, and mainstream community preparedness and resilience.	4.44	4.60	4.00	4.00	
CHALLENGE 7: Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely, and actionable data and information to all users.	4.44	4.40	4.50	4.50	
CHALLENGE 8: Through multi-stakeholder collaboration, develop a comprehensive digital representation of the ocean, including a dynamic ocean map, which provides free and open access for exploring, discovering, and visualizing past, current, and future ocean conditions in a manner relevant to diverse stakeholders.	3.56	2.40	2.00	2.00	
CHALLENGE 9: Ensure comprehensive capacity development and equitable access to data, information, knowledge and technology across all aspects of ocean science and for all stakeholders.	4.22	4.60	4.00	4.00	
CHALLENGE 10: Ensure that the multiple values and services of the ocean for human wellbeing, culture, and sustainable development are widely understood, and identify and overcome barriers to behaviour change required for a step change in humanity's relationship with the ocean.	4.00	4.40	3.75	4.50	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	3.33	4.25	4.00	5.00	
	3.33	4.25	5.00	5.00	
	4.00	4.50	5.00	5.00	
	4.00	4.75	5.00	5.00	
	4.33	4.75	4.00	4.00	
	3.33	4.50	5.00	4.00	
	4.00	4.75	5.00	5.00	
	3.67	4.50	4.00	5.00	
	4.00	4.75	5.00	5.00	
	4.00	4.50	4.00	4.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	4.21	4.33	4.00	4.25	4.33
	4.42	4.62	4.20	4.35	4.67
	4.21	4.36	3.80	4.22	4.33
	4.29	4.36	3.68	4.22	4.33
	4.19	4.42	3.80	4.20	4.00
	4.22	4.54	3.84	4.20	4.00
	4.03	4.51	4.12	4.25	4.67
	4.02	4.36	3.56	4.23	3.67
	4.28	4.42	3.84	4.25	4.67
	4.06	4.54	3.84	4.09	4.67

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	4.17	4.38	3.50	4.22	
	4.13	4.38	3.63	4.39	
	4.25	4.58	3.75	4.22	
	4.21	4.38	3.50	4.33	
	4.13	4.38	4.25	4.33	
	4.17	4.54	3.63	4.72	
	2.42	2.12	3.25	2.44	
	4.33	4.58	3.88	4.28	
	4.33	4.62	3.25	4.17	
	4.21	4.27	2.88	4.22	

Q13. In the context of the UN Decade of Ocean Science for Sustainable Development for which of the following Ocean Decade objectives are capacity development needs greatest in your country?

IOC Focal Points (N=20)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
OBJECTIVE 1: Identify required knowledge for sustainable development, and increase the capacity of ocean science to deliver needed ocean data and information	4.11	4.40	3.50	4.00	
OBJECTIVE 2: Build capacity and generate comprehensive knowledge and understanding of the ocean including human interactions, and interactions with the atmosphere, cryosphere and the land sea interface.	4.00	4.00	3.75	4.50	
OBJECTIVE 3: Increase the use of ocean knowledge and understanding, and develop capacity to contribute to sustainable development solutions.	4.33	4.40	4.50	4.50	

CD Focal Points (N=9)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	4.00	4.00	5.00	5.00	
	4.00	4.75	4.00	5.00	
	4.33	4.75	5.00	5.00	

Personal (N=320)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	4.14	4.36	3.84	4.16	4.67
	4.23	4.43	3.72	4.16	4.67
	4.14	4.60	4.12	4.33	4.67

Org Representative (N=76)

	AFRICA	LAC	OTHERS	WESTPAC	P-SIDS
	4.54	4.50	4.00	4.22	
	4.25	4.69	3.88	4.44	
	4.50	4.65	4.00	4.39	

ANNEX II

INPUT #3: GLOBAL AND REGIONAL PROGRAMMES

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
Q.1	To what extent did your global programme / regional subsidiary body implement the IOC Capacity Development Strategy 2015-2021?	
1		
2	ICG / CARIBE EWS	<ul style="list-style-type: none"> – We have implemented Activity 1.2 Continuous professional development, through training courses and workshops of tsunami warning procedures and sea level (Action 1.2.1) – Also, the connections established between professionals during those courses and workshops led sometimes to internship and visiting lecturers. (Action 1.2.2 and 1.2.3) – In the Caribbean, INVEMAR (Cartagena, Colombia) acts as training center (Action 1.2.4). However, so far it hasn't hosted any training organized by ICG/CARIBE-EWS. – Training materials have been widely shared inside and outside the region, through the Caribbean Tsunami Warning Program (CTWP) and the Puerto Rico Seismic Network (PRSN) and other actors in the region (Action 1.2.5) – Regarding the Activity 1.3, even when a travel grant doesn't exist as such, often the Tsunami Program of IOC designates funding for travel to workshops and training courses. (Action 1.3.1) – Also, there is a database on participants on Sea Level courses (Action 1.3.3) – ICG/CARIBE-EWS has always promoted the participation of women in ocean research (Action 1.4.1) – ICG/CARIBE-EWS works closely with IOCARIBE and ICG/PTWS (Action 3.2.1)
3	IOC/CARIBE ARUBA	On Aruba we are busy with reorganizing the secretariat of the UNESCO national committee, therefore not much progress can be reported.
4	ICG/PTWS	Increased regional communication by sharing and using information, enhanced knowledge in/use of ocean sciences (of relevance), and collaborating on developing sustainable ocean monitoring systems.
5	ICG/NEAMTWS	<ul style="list-style-type: none"> – Human resource development including higher education and continuous professional development are 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. However, there is no centrally recognized established centre to support ICG/NEAMTWS on human resource development in tsunamis, tsunami science and tsunami early warning and mitigation systems. The NEAMTIC needs to be resourced and appropriately staffed to develop and function as a Training and Capacity

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
		<p>Building Centre similar to other ICGs. NEAMTIC or similar mechanisms would then support for example the Tsunami Ready Communities programme in NEAM region.</p> <ul style="list-style-type: none"> – One of the greatest achievements of ICG/NEAMTWS in regards to High Level Objective -III “Effective early warning systems and preparedness for tsunamis and other ocean related hazards” and physical infrastructure established / improved is the establishment and accreditation of five tsunami service providers in France, Greece, Italy, Turkey and Portugal. Along with these centres a number of NTWCs (National Tsunami Warning Centres) exist namely in Spain and Romania. Some progress is still needed in other countries of the NEAM region. In spite of the advances made in the operational components there is still a long way to go to establish and sustain a denser and faster ocean observation network, dissemination and communication system capacity to improve early warning and early action for near field tsunamis. – Following the establishment of the five accredited TSPs and NTWC, the ICG/NEMATWS is now starting to explore how to further strengthen global, regional and sub-regional mechanisms e.g. UNDRR program in the region, the European Plate Observing System (EPOS), and the Joint Research Center of the European Commission, UNESCO Field Offices, etc. – To this end, the focus of research in ICG/NEAMTWS has focused mainly on the science of tsunami and Tsunami Early Warning Systems with certain connections with ocean research policies to support sustainable development. The ICG/NEAMTWS has started to focus on the downstream-last Mile component of the system, thus there are 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 acts as catalyst to capacity development e.g. general public information, and tsunami literacy. Moreover, two events that occurred in the Mediterranean in July 2017 (Kos-Bodrum) and in October 2020 (Samos-Izmir) event, called for the need to strength the capabilities in this region. – Overall, sustained resource mobilization needs to be reinforced. The Secretariat is now exploring new collaboration and funding opportunities with DG-ECHO.
6	IOTWMS	<ol style="list-style-type: none"> 1. The Intergovernmental Coordination Group for Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) of UNESCO-IOC supports the IOC Capacity Development Strategy (2015-2021), specifically output 4 on Development of Ocean Research Policies in Support of Sustainable Development Objective Promoted, focusing on action 4.2.1: Assist Member States with the Development of Marine Science Management Procedures and National Policies. Through the ICG/IOTWMS working groups and task teams, with support from the Secretariat and Indian Ocean Tsunami Information Centre (IOTIC) of UNESCO-IOC, implementation of programs and activities on capacity development for Indian Ocean Member States included: <ol style="list-style-type: none"> 1) IOTWMS Regional Workshop on Standard Operating Procedures for Tsunami Warning and Emergency Response for Indian Ocean Countries, Hyderabad, India - November 2015 2) IOTWMS Regional Pre-Exercise IOWave16 Workshop on Standard Operating Procedures for Tsunami Warning and Emergency Response for Indian Ocean Countries, Melbourne, Australia - May 2016 3) Training on Tsunami Warning Centre Operations and Standard Operating Procedures, Hyderabad, India - July 2018

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
		<p>2. UNESCO-IOC signed a Partnership Agreement with the Government of Indonesia through its Agency for Meteorology, Climatology and Geophysics (BMKG) to support IOTIC programs during 2017-2022. The two main programs under this partnership agreement, which support output 4 on action 4.2.1, are detailed below</p> <p>1) Indian Ocean Regional Workshop (IORW). The objectives of IORW were: (i) Introduce UNESCO-IOC, ICG/IOTWMS, and/or IOTIC program and activities to the Indian Ocean Member States; (ii) Exchange information and experiences among the Indian Ocean Member States; (iii) Review IOTIC, ICG/IOTWMS and/or the Indian Ocean Member States tsunami related activities; (iv) Identify and recommend appropriate actions and improvements of programs and activities implemented by IOTIC, ICG/IOTWMS and/or the Indian Ocean Member; and (v) 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 the following regional workshops (2017-2020):</p> <ul style="list-style-type: none"> – Indian Ocean Tsunami Ready Workshop, Jakarta, Indonesia - September 2017 – Exercise IOWave18 and Indian Ocean Tsunami Ready Lessons Learnt Workshop, Jakarta, Indonesia - November 2018 – International symposium on Lessons Learnt of the 2018 Tsunamis in Palu and Sunda Strait, Jakarta, Indonesia - September 2019 – Strengthening Tsunami Warning Chain to Critical Infrastructure Workshop for Ports, Harbours, and Coastal Airports, Jakarta, Indonesia - November 2019 – Pre-Exercise IOWave20 Webinar on Standard Operating Procedures for Tsunami Early Warning and Emergency Response, Online event - September 2020 – Tsunami Ready in Indian Ocean Island States Regional Webinar, Online event - November 2020 – Post-Exercise IOWave20 Webinar on Lessons Learnt during Exercise Indian Ocean Wave 2020, Online event - November 2020 <p>2) Indian Ocean Capacity Building (IOCAP). Assist, enhance, develop, and/or empower the Indian Ocean Member States stakeholders (individuals and organizations) to implement programs and activities of UNESCO-IOC, ICG/IOTWMS, and/or IOTIC; and strengthened capacity of individuals and organizations of the Indian Ocean Member States to implement programs and activities of UNESCO-IOC, ICG/IOTWMS, and/or IOTIC.</p> <p>3. In coordination with the ICG/IOTWMS Secretariat, IOTIC-BMKG conducted the following training activities (2017-2020):</p> <ol style="list-style-type: none"> 1) Tsunami Evacuation Maps, Plans and Procedure Training 1, Citeko, Indonesia - November 2017 2) Tsunami Evacuation Maps, Plans and Procedure Training 2, Hyderabad, India - November 2018 3) Tsunami Evacuation Maps, Plans and Procedure Training 3, Citeko, Indonesia - November 2018 4) Training on Implementation of UNESCO-IOC Tsunami Ready Programme and Recognition, Hyderabad, India - December 2019

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
		<p>5) IOTIC Online Lecture Series on Tsunami Ready, Interactive Expert Sessions on Piloting UNESCO_IOC Tsunami Ready in Indian Ocean – September and October 2020</p> <p>4. In addition to the above activities, the IOTIC and ICG/IOTWMS Secretariat implement projects with capacity development component supporting output 4 on action 4.2.1 as detailed below:</p> <p>1) Fostering Tsunami Preparedness, Response, and Mitigation in the Indian Ocean Small Island Developing States and Developing Countries funded by the Malaysian Funds in Trust of the Malaysia UNESCO Cooperation Program (2015-2016):</p> <ul style="list-style-type: none"> – Regional Training/Workshop on Coastal Hazard Assessment and Mitigation in Beau Vallon, Seychelles - March 2016 – National Training on Standard Operating Procedures for Tsunami Early Warning and Response in Mauritius - March 2016. – Pre-Exercise IOWave16 Training/Workshop on Tsunami Awareness and Preparedness and Standard Operating Procedures for Tsunami Warning and Emergency Response in Mozambique in Maputo, Mozambique, - June 2016. – Pre-Exercise IOWave16 Training/Workshop on Tsunami Awareness and Preparedness and Standard Operating Procedures for Tsunami Warning and Emergency Response in Tanzania in Dar Es Salam, Tanzania, - June 2016. – Training/Workshop on Toward the Indian Ocean Wave Exercise 2016 in Seychelles - Tsunami Awareness, Preparedness, and Early Warning System and Response, Beau Vallon, Seychelles - August 2016 <p>2) Strengthening Tsunami Warning in the North West Indian Ocean through Regional Collaboration funded by UNESCAP (2019 - 2021)</p> <ul style="list-style-type: none"> – Regional training / workshop 1 on Tsunami Early Warning and Tsunami Emergency Response SOP workshop, Karachi, Pakistan - February 2020 – Regional training / workshop 2 on Tsunami Early Warning and Tsunami Emergency Response SOP workshop, TBC - February 2021 – Regional Media workshops 1 on Tsunami Emergency Warning and Response, TBC - February 2021 – Regional Media workshops 1 on Tsunami Emergency Warning and Response, TBC - August 2021. <p>5. In support of the expected output 3: Global, regional, and sub-regional mechanism strengthened, especially on action 3.1.1 Improve Staffing of Secretariat of Regional Sub-commissions and 3.1.2 Reinforcing Budgeting of Regional Sub-Commissions, three India Ocean countries have provided financial and in-kind support:</p> <p>1) Australia provides support for the operation of the Joint Australia Tsunami Warning Centre as one of the Tsunami Service Providers in Indian Ocean and through the Australia Bureau of Meteorology supports the ICG/IOTMWS Secretariat (staff, office, and program).</p> <p>2) India provides support for the operation of the Indian Tsunami Warning Centre as one of the Tsunami Service Providers in the Indian Ocean.</p>

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
		3) Indonesia provides support for the Indonesian Tsunami Early Warning Centre (InaTEWS) as one of the Tsunami Service Providers in Indian Ocean and through BMKG supports the IOTIC-BMKG Program Office (staff, office, and program).
Q.2	What is your global program me /regional subsidiary body experience so far with the current IOC CD strategy?	
1		
2	ICG / CARIBE EWS	ICG/CARIBE-EWS has had a good experience with the IOC CD strategy, despite not being specific in its application.
3	IOC/CARIBE ARUBA	See answer 1.
4	ICG/PTWS	Mainly in the sharing science, expertise and knowledge, technology and infrastructure, effective communication, data/information sharing.
5	ICG/NEAMTWS	The experience is that there is little familiarity and awareness of the IOC CD strategy/framework among ICG/NEAMTWS Member States. The framework is not necessarily a tool expert use to guide and implement CD.
6	IOTWMS	Not all expected outputs could be implemented under the program and activities of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System.
Q.3	Have you, as global programme /regional subsidiary body, experienced any difficulty in implement ting the current IOC CD strategy?	
2	ICG / CARIBE EWS	<ol style="list-style-type: none"> 1. Funding is always a difficulty regarding CD. Also, in the Caribbean region there are only a bunch of ocean sciences professionals and in some cases, there is a frequent staff rotation. 2. However, many professionals that have participated in training courses and workshop have been able to improve their work and get job stability.
3	IOC/CARIBE ARUBA	See answer 1
4	ICG/PTWS	No, however please see response to question 4 below.
5	ICG/NEAMTWS	<ol style="list-style-type: none"> 1. Difficulty in implementing the strategy arises from the lack of Sustained (long-term) resource mobilization for activities related in the member states and resources to participate in the IOC activities; moreover, there is no continuous funding for tsunami research in EU. 2. There is a clear need to improve interoperability among the Tsunami Service providers to reduce inconsistencies between tsunami warning messages. Progress should be made to understand the interaction of tsunami hazards with climate change and sea level change.

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
		<p>Progress still needed to integrate non-seismic events, such as tsunami induced by volcanoes, landslides and meteo-tsunamis in the operational TWS</p> <p>3. What are the possible gaps that you, as global programme /regional subsidiary body, have identified in the current IOC CD Strategy, particularly taking into account the Decade objectives and expected outcomes?</p> <p>4. N/A (not discussed in the framework of the ICG-NEAMTWS)</p>
6	IOTWMS	Yes, especially in securing support and resources to implement the activities and actions. There is a need for increased capacity to develop programs and activities in support of the implementation of the Capacity Development Strategy.
Q.4	What are the possible gaps that you, as global programme/regional subsidiary body, have identified in the current IOC CD Strategy, particularly taking into account the Decade objectives and expected outcomes?	
2	ICG / CARIBE EWS	<p>1. Possible gaps are the identification of funding opportunities and technology transfer</p> <p>2. For example, it could be more assessing to national tsunami warning centers to improve their functions.</p>
3	IOC/CARIBE ARUBA	At this time, I don't see any GAPS that need urgent attention.
4	ICG/PTWS	Risks to strategy implementation outside of our control i.e. Covid-19. Our success is in regional collaboration and Member State sharing. Some outputs of the strategy may not have been fully explored or hindered due to the global pandemic.
5	ICG/NEAMTWS	N/A (not discussed in the framework of the ICG-NEAMTWS)
6	IOTWMS	<p>It seems that not many of the Indian Ocean member states under the Intergovernmental Coordination Group for Indian Ocean Tsunami Warning and Mitigation System are aware of the IOC Capacity Development Strategy. Only a few Indian Ocean member states have established their National Coordination mechanism for UN Decade of Ocean Science.</p> <p>The ICG/IOTWMS work with the member states through their Tsunami National Contact, which might not be a part of the National UN Decade of Ocean Science Coordination mechanism</p>
Q.5	Are there any elements that you, as global programme /regional subsidiary body, want to propose as additional components in the revision of the IOC CD strategy? Please justify.	
2	ICG / CARIBE EWS	Not for now.
3	IOC/CARIBE ARUBA	As part of the Human resources development, I would suggest to have online regional training/workshops for the IOCARIBE focal points, this in order to bring forward IOC programs and ideas better forward.
4	ICG/PTWS	N/A

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
5	ICG/NEAMTWS	NO (to answer this question in a different way I think we need to consult the ICG-NEAM members)
6	IOTWMS	A guide and support on resource mobilization to implement this Capacity Development Strategy
Q.6	How should the IOC CD strategy contribute to the Decade and its implementation plan?	
2	ICG / CARIBE EWS	It should give priority to SIDS (small island developing states) and LDCs (less developed countries). It should align with the priorities established in the programs in the framework of the Ocean Decade. For example on Tsunami Ready.
3	IOC/CARIBE ARUBA	In my view is this addressed already in the 6 outputs in the framework.
4	ICG/PTWS	Promoting development & implementation of integrated monitoring & warning systems (weather, sea level, seismic, tsunami) - regionally and globally. Understanding the needs of the end user (public) and use this information to build an effective, efficient and reliable monitoring and warning system.
5	ICG/NEAMTWS	In terms of TEWS but not only, IOC should continuously foster basin wide cooperation namely between NEAM and Caribbean and Indian and Pacific keeping in mind global cooperation. IOC should promote the interoperable crowd data to be used in different fields of ocean science IOC should promote citizen science (scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions). IOC should promote citizen-science projects that will serve education and outreach goals namely in tsunami awareness
6	IOTWMS	Capacity Development should be one of the backbones of the Decade such that all of the societal outcome of the UN Decade for Ocean Science should be backed up with strong capacity development. This also links with “leave no one behind” by reducing the gap between those having advanced knowledge and capacity with those lacking capacity and opportunities.
Q.7	What are the most important global ocean science developments in addition to the UN Decade of Ocean Science for Sustainable Development that the updated IOC CD strategy should recognize and respond to?	
2	ICG / CARIBE EWS	Global scientific developments like artificial intelligence and behavioral sciences (that can improve tsunami response)
3	IOC/CARIBE ARUBA	I would recommend focusing more on Visibility and awareness, especially through ocean literacy.
4	ICG/PTWS	Next-generation monitoring and forecasting (e.g. cables, satellite, etc) for all ocean hazards and risks.
5	ICG/NEAMTWS	1. The use of smart telecom cables to establish real-time submarine observatories to be used in Tsunami Early Warning (to attach seismometers and bottom pressure recorders and other sensors to the submarine telecommunication repeaters/cables)

No.	GLOBAL & REGIONAL PROGRAMMES	RESPONSE
		<ol style="list-style-type: none"> 2. The use of constellations of altimetry satellites for tsunami detection 3. The use of Machine Learning and data mining tools for quality control of data and to do real time impact assessment studies 4. The use of nanosats and drones to monitor the ocean surface namely, oil spills, illegal fisheries, and environmental disasters 5. The detection of gravitational waves to detect mega earthquakes that can trigger tsunamis
6	IOTWMS	Manual and guidance on resource mobilization to support the Capacity Development Strategy.

ANNEX III

INPUT # 4

UN SPECIALIZED AGENCIES, NON-UN IGOs, NGOs, ETC.

No.	NON-UN IGOs, NGOs	RESPONSE
Q.1	To what extent did your global programme / regional subsidiary body implement the IOC Capacity Development Strategy 2015-2021?	
1	WTO	
2	UNESCAP	<ol style="list-style-type: none"> 1. Capacity development is at the core of ESCAP's technical cooperation programme. The main objective of our capacity development work is to develop the technical, managerial and institutional capacities of member and associate member governments to plan and deliver more effective policies and programmes in support of inclusive and sustainable development. We attach special attention to least developed and landlocked developing countries as well as small island developing states. 2. Key features of ESCAP capacity development programme include: <ol style="list-style-type: none"> a. Integrated approaches - linking research and analytical work with practical solutions b. Focus on transboundary issues – common solutions to common problems (energy, environment, sustainable urban development, transport, trade, connectivity) c. Results-based approach (focus on results, rather than activities) d. Fewer, bigger, deeper & longer projects e. Closer relationship with partners/donors f. Moving towards longer-term funding (current capacity development projects cover 3 years) g. Multi-donor arrangements h. Moving towards simplified substantive and financial reporting 3. ESCAP works with governments on three key modalities: <ol style="list-style-type: none"> a. Policy advocacy and dialogue on critical and emerging issues, including follow-up to global and regional commitments; b. Regional knowledge networking aimed at enabling members and associate members of ESCAP to share knowledge, lessons learned, and innovative practices; and c. Training, advisory services and other forms of technical cooperation to strengthen the capacity of ESCAP's members and associate members to formulate and implement effective policies and programmes in a range of key development areas. 4. Our capacity development programme is provided through the various ESCAP substantive divisions and subregional offices. Five ESCAP's Regional Institutions also offer training focusing on information and communications technology for development, technology transfer, poverty alleviation and food security, statistics and sustainable agricultural and food production. 5. Our capacity development work is funded from both the regular budget of the United Nations and extrabudgetary resources. The regular budget includes the Regular Programme of Technical Cooperation and the United Nations Development Account.

No.	Non-UN IGOs, NGOs	RESPONSE
		<p>6. Extrabudgetary resources include voluntary contributions from individual governments, entities of the UN system and other intergovernmental organizations, the private sector and NGOs. Such contributions are provided as cash (funds-in-trust) or assistance in kind, including the secondment of experts on a non-reimbursable loan basis and the provision of host facilities and equipment.</p> <p>Link: https://www.unescap.org/learning-training https://www.unescap.org/resources/assessment-capacity-development-needs-countries-asia-and-pacific-implementation</p>
3	FAO	<p>Yes, FAO has a comprehensive portfolio of CD activities which includes: training and training of trainers (TOT), coaching and mentoring, organizational development, support to informal networks, and South-South cooperation agreements.</p> <p>FAO increasingly works with national training institutes and universities to support the adaptation of new knowledge into existing curricula. FAO also supports organizations such as sector ministries to coordinate better among themselves and with others (private sector, farmer and producer organizations and civil society organizations (CSO)) in multi-stakeholder processes.</p> <p>At policy level, as a neutral convener FAO supports policy dialogue and policy processes for the formulation and implementation of country-owned policies.</p> <p>Link:</p>
4	UNEP	
5	ILO	
6	IMO	<ol style="list-style-type: none"> 1. Yes. As the United Nation's (UN) specialized agency for the safety, security and environmental performance of international shipping, the International Maritime Organization's (IMO) main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented. Technical Cooperation (TC) is thus an essential part of the mandate and values of IMO, as the universal implementation of global standards governing international merchant shipping cannot be achieved without the provision of technical assistance and training to those countries who lack the capacities to implement these standards. 2. The key principle of IMO's technical cooperation (TC) programme is to increase the capacity of developing countries to implement IMO regulations. The biennial ITCP is based on the programme-building directives of the Organization's Technical Cooperation Committee (TCC), thematic priorities of other IMO committees and the Organization's key principles. While responding to requests for assistance from IMO Member States, the ITCP also ensures follow-up on previous activities delivered and on the implementation gaps identified during IMO Member State Audit Scheme (IMSAS) audits. On the other hand, the thematic long-term projects implemented by IMO address the high-priority specific needs of Member States through thematic interventions. 3. Informed by the Organization's wider mission and strategy, the Secretary-General's vision and policy direction in TC matters and the respective objectives of the approved strategic directions and outputs of the Strategic Plan for the Organization for the Six-year Period 2018 to 2023 (A.1110(30)), IMO's TC programmes emphasize the strengthening of institutional capabilities and human resource development. 4. In addition to these programmes, through the World Maritime University (WМУ) and the IMO International Maritime Law Institute (IMLI), two premier global maritime training institutions established under the auspices of IMO, the Organization

No.	Non-UN IGOs, NGOs	RESPONSE
		<p>further addresses the shortage of well-qualified maritime personnel, particularly in less-developed nations. IMO's technical cooperation has traditionally been funded through extra-budgetary and external resources.</p> <p>5. The Organization's long-term strategy for the review and reform of technical cooperation is currently under development.</p> <p>Link: https://docs.google.com/document/d/1HHzZaL-pO-OLI-43nMImVOCq-N39vkdK/edit https://www.imo.org/en/OurWork/TechnicalCooperation/Pages/ITCP.aspx</p>
7	ISA	<ol style="list-style-type: none"> 1. The duty of ISA to design and implement mechanisms to build capacity for developing States, in accordance with its mandate under UNCLOS, is recognized in the Strategic Plan of the Authority for the period 2019–2023. 4 Such mechanisms are designed and implemented not only for promoting and encouraging the transfer of technology to developing States⁵ but also for ensuring the expansion of opportunities for participation in activities in the Area. 6 Strategic Direction 5 (Build capacity for developing States) and Strategic Direction 6 (Ensure fully integrated participation by developing States) of the Strategic Plan are aimed at accomplishing this objective. 2. As indicated in the High-Level Action Plan of ISA for the period 2019– 2023 relating to the implementation of the Strategic Plan⁷, one of the specific actions undertaken by the Secretariat in 2020 was to assist developing States, in particular geographically disadvantaged States, least developed countries, landlocked developing countries and small island developing States in identifying their needs (high-level action 5.1.1). 3. This was achieved through an incremental process consisting in a report commissioned by the ISA Secretariat in 2019 to review all capacity-building programmes and initiatives implemented by ISA between 1994 and 2019, ⁸ the organization of an international workshop on “Capacity development, needs and resources assessment” organized in February 2020 in Kingston (Jamaica)⁹ and a survey circulated to all ISA members between April and June 2020 in which they were invited to identify their priority capacity development needs relating to the role and mandate given to ISA under UNCLOS. Building on the results of this process, the ISA Assembly formally adopted a decision in December 2020 relating to the implementation of a programmatic approach to capacity development for ISA¹⁰. 4. This decision has been further complemented with the adoption of the Action Plan of the International Seabed Authority in support of the UN Decade of Ocean Science by the ISA Assembly in December 2020¹¹. Aligned with the Implementation Plan of the UN Decade of Ocean Science, ISA's MSR Action Plan is structured around six strategic research priorities, namely: <ol style="list-style-type: none"> a. Strategic research priority 1: Advancing scientific knowledge and understanding of deep-sea ecosystems, including biodiversity and ecosystems functions, in the Area; b. Strategic research priority 2: Standardizing and innovating methodologies for deep-sea biodiversity assessment, including taxonomic identification and description, in the Area; c. Strategic research priority 3: Facilitating technology development for activities in the Area, including ocean observation and monitoring; d. Strategic research priority 4: Enhancing scientific knowledge and understanding of potential impacts of activities in the Area; e. Strategic research priority 5: Promoting dissemination, exchange and sharing of scientific data and deep-sea research outputs and increasing deep-sea literacy;

No.	Non-UN IGOS, NGOs	RESPONSE
		<p>f. Strategic research priority 6: Strengthening deep-sea scientific capacity of Authority members, in particular developing States. Strategic Research Priority 6 will specifically be developed with the aim of strengthening further the current efforts and activities of ISA to develop the capacities of its members in marine scientific research</p> <p>Link: https://isa.org.im/files/files/documents/Review%20Of%20Capacity-building%20Programmes%20And%20Initiatives%20By%20ISA.pdf</p>
8	CBD	
9	UNDP	
10	UNIDO	
11	UNHRLSS	
12	WB	
13	WMO	<p>Yes</p> <p>WMO Capacity Development Strategy and Implementation Plan (2015) WMO CD Public webpage WMO Capacity Development Panel, the Chair of the WMO Capacity Development Panel observes at the Joint WMO-IOC Collaborative Board (JCB), and the IOC CD Group of Experts The Standing Committee on Marine Meteorological and Oceanographic Services (SC-MMO) has an Expert Team on Competencies and Capacity Development (ET-CCD) in progress. JCOMM Capacity Building Strategy WMO Education, Training and Fellowships programmes [PANGEA concept (inherited from JCOMM) that is still valid to develop partnership between developed and developing countries to realize the socio-economic benefits of ocean observing systems at global and regional scales. Dedicated task team on capacity building of the WMO-IOC data buoy cooperation panel (DBCP-TT-CB)] Capacity Development for Climate Services- Guidelines for National Meteorological and Hydrological Services- WMO No. 1247</p>
14	UNCTAD	
15	UNESCO	<p>The Secretariat of the 2001 Convention on the Protection of the Underwater Cultural Heritage is part of UNESCO as depositary organization. As such the Secretariat organizes regular trainings on underwater archaeology and underwater heritage protection. The 2001 Convention is supported by 15 accredited NGOs, 3 Chairs, a Unitwin Network for Underwater Archaeology and an International Center in Zadar, Croatia.</p> <p>Link: www.unesco.org/new/en/culture/themes/underwater-cultural-heritage/education/</p>
16	UNDDOALOS	Yes

No.	Non-UN IGOs, NGOs	RESPONSE
		Link Currently under review and internal only.
17	UNFCC	
18	CMS	
19	DESA	Yes, UN DESA delivers its capacity development support in a variety of ways through different service delivery models, adapting its services to different circumstances and requirements. Further information can be found at the below link Link https://www.un.org/development/desa/capacity-development/what-we-do/service-delivery-model/
20	UNOPS	
21	CITES	
22	IEAE/MEL	
23	IHO	YES, the IHO has a Capacity Building (CB) Strategy Link: https://iho.int/uploads/user/Inter-Regional%20Coordination/CBSC/MISC/IHO_CB_Strategy_EN.pdf
24	OECD	
25	EC/DG	
26	ICES	
27	PICES	
28	SPREP	
29	SPC	
30	CPPS	
31	SARGASO	No Link Not applicable
32	OSPAR	
33	HELCOM	
34	NAIROBI & ABIDJA COMMISSION	

No.	Non-UN IGOs, NGOs	RESPONSE
35	CARTANEGA	
36	IORA	
Q.2	What is your global program me /regional subsidiary body experience so far with the current IOC CD strategy?	
1	WTO	
2	UNESCAP	<ol style="list-style-type: none"> 1. Output 1. <ol style="list-style-type: none"> a. Academic and higher education opportunities including through online and distance learning b. Continuous professional development^{USEP} Sharing of knowledge and expertise including through community building c. Training, including training of trainers d. Actively improving gender, enerational and geographic diversity 2. Output 2. NA 3. Output 3 <ol style="list-style-type: none"> a. Identifying specific national and regional capacity development needs through needs assessments b. Strengthening existing ational and regional resources and networks for capacity development c. Supporting regional and sub-regional organisations to be leaders in, and amplifiers of, capacity development 4. Output 4 <ol style="list-style-type: none"> a. Supporting identification of ocean research priorities b. Supporting development of national marine science management procedures and national policies 5. Output 5 <ol style="list-style-type: none"> a. Ocean literacy initiatives b. Public information and communication 6. Output 6 Mobilising in-kind and financial support for capacity development initiatives as part of the Decade
3	FAO	<ol style="list-style-type: none"> 1. FAO CD outcomes related to ocean science are focused on sustainable exploitation of fisheries and aquaculture to achieve better production, better nutrition, a better environment, and a better life, and are well aligned to the strategy outcomes elaborated by IOC, namely, that Member States to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and decision-making processes. 2. FAO programmes are well aligned with the majority of Decade outcomes. There is very strong alignment with Decade outcome 2 (A healthy and resilient ocean where marine ecosystems are understood, protected, restored and managed) and 3 (A productive ocean supporting sustainable food supply and a sustainable ocean economy); Decade outcomes 6 (An accessible ocean with open and equitable access to data, information and technology and innovation) and 7 (An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable

No.	Non-UN IGOs, NGOs	RESPONSE
		development) are important outcomes of a cross-cutting nature that will help to advance FAO objectives with respect to capacity development.
4	UNEP	
5	ILO	
6	IMO	<ol style="list-style-type: none"> 1. IMO hosts the secretariat for The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), that advises the United Nations (UN) system on the scientific aspects of marine environmental protection. GESAMP's functions are to conduct and support marine environmental assessments, to undertake in-depth studies, analyses, and reviews of specific topics, and to identify emerging issues regarding the state of the marine environment 2. The outcomes of the Decade and IOC Capacity Development Strategy align well with GESAMP's functions. GESAMP was created to meet the need for a cross-sectoral, multidisciplinary, scientific understanding of marine ecosystems and the human activities that affect them. More recently, GESAMP and its sponsoring agencies have recognized the need to focus more on assisting UN and regional bodies as well as governments in the analysis of new trends and emerging issues in the context of management and policy implications and to provide guidance and advice on management/policy guidelines. 3. Science underpins the policy and regulatory activities in the shipping sector and many of the environmental regulations and treaties developed through IMO originate from, and have been influenced by, significant scientific input, both in terms of identification of the actual issue and the formulation of the regulatory response. The attached IMO submission to the twentieth session of the UN open-ended Informal Consultations on Oceans and the Law of the Sea (ICP), provides information on the role of science in the work of IMO, and further highlights the example of GESAMP. <p>Link GESAMP Website: http://www.gesamp.org/</p>
7	ISA	Considering the specific and exclusive mandate assigned to ISA under UNCLOS in relation to the promotion and encouragement of marine scientific research in the Area, the coordination and dissemination of research results when available and the development of capacity-building programmes for developing States and less technology advanced States, the outcomes of all capacity- building/development activities implemented by ISA (see below) are highly compatible with the CD outcomes in IOC Capacity Development Strategy and the Decade. These include contributions to developing human resources, facilitating access to physical infrastructure, and increasing visibility and awareness of the ocean. Furthermore, ISA activities contribute to the development of national scientific and regulatory programmes of member States, stimulate future programmes and build capacities in the management of national and international ocean affairs.
8	CBD	
9	UNDP	
10	UNIDO	
11	UNHRLSS	
12	WB	

No.	Non-UN IGOS, NGOs	RESPONSE
13	WMO	<ol style="list-style-type: none"> 1. Focus particular attention on coastal LDCs and SIDS to addressing specific issues such as marine services, GFCS and disaster risk reduction. [ocean observations and data applications] 2. Increase awareness of the socio-economic benefits derived from products and services, including their contribution to the achievement of SDGs and the Decade, particularly by promoting gender equality and empowerment of women, 3. Continuously assess and address training needs; 4. Expand the number of strategic partnerships with internal and external stakeholders; 5. Support the above initiatives through enhanced resource mobilization; 6. Joint training events through collaboration with WMO Regional Training Centres and collaborating partners
14	UNCTAD	
15	UNESCO	<ol style="list-style-type: none"> 1. The Secretariat of the 2001 Convention seeks by its capacity-building efforts to achieve, among others, the following outcomes (in shortened form): <ul style="list-style-type: none"> – Underwater cultural heritage is protected from negative human and environmental impact – States are able to actively research and value their submerged heritage – Underwater cultural heritage is open to responsible access and visible as well as beneficial to the public – The scientific data contained in underwater cultural heritage is available and studied 2. In regard to the ‘Outcomes’ of the IOC Decade Implementation Plan this means in practical terms: <ul style="list-style-type: none"> – Outcome 1: ‘A clean ocean where sources of pollution are identified and reduced or removed’ which considers that ‘it will be critical to fill urgent knowledge gaps and generate priority interdisciplinary and co-produced knowledge on the causes and sources of pollution and its effects on ecosystems and human health’. Wrecks of the last two centuries hold often considerable amounts of fuel representing a source of pollutants threatening marine ecosystems. Underwater archaeology and a mapping of this modern underwater cultural heritage could help identify and mitigate this threat. An issue arises moreover when pollution and heritage protection need to be balanced. Example: Fishing nets have been lost by deep sea trawlers. They now cover wrecks, while continuing to kill fish. Recovering them could drags the wrecks apart. – Outcome 2: ‘A healthy and resilient ocean where marine ecosystems are understood, protected, restored and managed’, which underlines that ‘knowledge gaps of ecosystems and their reactions to multiple stressors need to be filled’. Underwater archeology has much knowledge to offer to understand human interactions with oceans and how these affect marine and coastal ecosystems – Outcome 3: ‘A productive ocean supporting sustainable food supply and a sustainable ocean economy’, which recalls that oceans ‘secure livelihoods for hundreds of millions of the world’s poorest people’ and that they ‘provide essential goods and services to a wide range of established or emerging industries including [...] tourism’. Underwater cultural heritage can contribute to the Blue economy through recreation and tourism. This however implies ensuring responsible access to underwater heritage as a precondition for its long-term protection and sustainable management

No.	Non-UN IGOs, NGOs	RESPONSE
		<ul style="list-style-type: none"> — Outcome 4: 'A predicted ocean where society understands and can respond to changing ocean conditions', which stresses that 'the vast volume of the ocean is neither adequately mapped nor observed, nor is it fully understood'. Research in underwater archaeology generates significant data and knowledge that can help understand past conditions of the ocean and develop integrated understanding of ocean ecosystems, including as concerns climate change. Underwater cultural heritage sites need to be integrated in ocean mapping and marine special planning to develop integrated ocean management — Outcome 6: 'An accessible ocean with open and equitable access to data, information and technology innovation' that calls for 'increased skills and opportunities to engage in data collection, knowledge generation and technological development' and 'increased dissemination of [...] relevant ocean knowledge to the scientific community, governments, educators [...] and the public [...] to improve management [...] and decision-making contributing to societal goals of sustainable development'. Underwater archaeologists need to be able to access data and information generated by marine scientists, and vice-versa, with a view to integrating ocean knowledge. This implies being able to use technology platforms and tools used to generate, store and share such data and to disseminate associated knowledge among decision-makers, educators and the public to improve ocean management — Outcome 7: 'inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development' which aims to 'build a broader understanding of the economic, social and cultural values of the ocean by society'. <p>This outcome provides an opportunity to demonstrate the important interactions between humans and oceans, understand their importance for the future of oceans, raise awareness on threats to oceans and encourage behavioral changes towards them through communication and advocacy in ocean literacy.</p>
16	UNDOALOS	<ol style="list-style-type: none"> 1. The CB Programme of DOALOS supports and reinforces States', IGOs' and stakeholders' capacity to sustainably manage ocean spaces, resources and activities through the implementation and development of legal and institutional ocean governance frameworks at all levels. It also recognizes that science is a central component of these frameworks, and seeks to reinforce the science-policy interface at all levels and including through the work undertaken by the Regular Process. 2. In addition, the United Nations Legal Counsel who acts, together with DOALOS, as the focal point of the UN-Oceans, is committed to promoting the full implementation of the goals of that inter-agency mechanism that seeks to enhance the coordination, coherence and effectiveness of competent organizations of the United Nations system and the International Seabed Authority. Among these goals are the strengthening and promotion of coordination and coherence of United Nations system activities related to ocean and coastal areas; regular sharing of ongoing and planned activities of participating organizations with a view to identifying possible areas for collaboration and synergy; and facilitation of inter-agency information exchange, including sharing of experiences, best practices, tools and methodologies and lessons learned in ocean-related matters. In our view, the useful role that UN-Oceans mechanism can play in the context of inter-agency collaboration should also be taken into account in the context of the revision of IOC CD Strategy.
17	UNFCC	
18	CMS	

No.	Non-UN IGOs, NGOs	RESPONSE
19	DESA	<ol style="list-style-type: none"> 1. The outcome of the UN DESA capacity development (CD) strategy is for partners to support Member States in building integrated, evidence-based, inclusive and well-funded national strategies and plans to achieve sustainable development that ensure no one is left behind. 2. With regards to oceans science, UN DESA CD outcomes targeting data and statistics and the SIDS partnership framework are most interoperable to the IOC Capacity Development Strategy, which has targeted outcomes for, 'Member States to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment,' and, 'Development of ocean research policies in support of sustainable development objectives.' For the Decade, outcome 9, 'Transformative ocean science solutions for sustainable development, connecting people and our ocean,' and outcome 6, 'An accessible ocean with open and equitable access to data, information and technology and innovation,' are most compatible. 3. The data and statistics capacity development provides SIDS with access to open source knowledge platforms, databases, and e-learning tools and support on data and statistics as they relate to the SDGs, as well as metadata information provided by the UN system and other international organizations, such as those working at the forefront of ocean science. This enables SIDS to better predict ocean fundamentals and provides an understanding of its changing nature, allowing SIDS to better respond to changing ocean conditions. The SIDS Partnership Framework is designed to monitor progress of existing, and stimulate the launch of new, genuine and durable partnerships for the sustainable development of SIDS, including amongst scientific research-based institutions that can provide further insight on sustainable development of ocean centric populations.
20	UNOPS	
21	CITES	
22	IEAE/MEL	
23	IHO	<p>There are the two following parts (concepts) of the IOC and Decade CD outcomes and IHO CB outcomes definitely interoperable each other:</p> <ol style="list-style-type: none"> a. From IOC CD outcomes: "To learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and decision-making processes" is interoperable with IHO CB outcomes "To achieve sustainable development and improvement in their ability to meet hydrographic, cartographic and maritime safety obligations with particular reference to recommendations in UNCLOS, SOLAS, and other international instruments, with the aim to develop a national plan to establish national sea mapping, nautical charting and MSDI capabilities, and raise of marine awareness". The interoperable outcomes are both mainly focused on the knowledge and protection of marine environment. b. The role of the Regional and Sub-regional entities, as enabler of the respective Strategies and tools to adaptively approach to capacity development for their respective regions in oceanographic, hydrographic and cartographic fields respectively, including training, technical cooperation, organizational and structural advice.
24	OECD	
25	EC/DG	

No.	Non-UN IGOs, NGOs	RESPONSE
26	ICES	
27	PICES	
28	SPREP	
29	SPC	
30	CPPS	
31	SARGASO	Not Applicable
32	OSPAR	
33	HELCOM	
34	NAIROBI & ABIDJA COMMISSION	
35	CARTANEGA	
36	IORA	
Q.3	Have you, as global programme /regional subsidiary body, experienced any difficulty in implementing the current IOC CD strategy?	
1	WTO	
2	UNESCAP	<p>In addition to in situ trainings and workshops that have been postponed due to travel restrictions and health concerns related to the COVID-19 pandemic, we have reinforced virtual capacity development activities. For example:</p> <ol style="list-style-type: none"> 1. Executive training program: In November 2020, ESCAP offered a five-day virtual capacity development programme, is focusing on the five thematic areas covered by the 6th Committee on Environment and Development, including raising climate ambition; safeguarding ecosystems health; clean air for all; cities for a sustainable future; and environmental governance. The protection of the marine environment, and marine pollution in particular, was one of the focus areas in one of the modules. 2. e-Learning: ESCAP is currently developing an e-learning course on SDG6 and SDG14, including source-to-sea dynamics. This course aims to inform policymakers and government officials to raise technical expertise in the region and to promote the protection of marine ecosystems through appropriate governmental actions. 3. The Asia-Pacific Day for the Ocean: ESCAP hosts the Asia-Pacific Day for the Ocean annually. This event is a multi-stakeholder dialogue platform, which supports systematic regional dialogue and enhances regional cooperation on the conservation and sustainable use of marine resources by promoting experience-sharing, technology transfer, capacity-building and engagement of all stakeholders. In 2020, the third edition of the event provided a space to identify elements for a regional “Decade Program”, within the scope of the UN Decade of Ocean Science for Sustainable Development, and building on virtual consultations that were organized in

No.	Non-UN IGOS, NGOs	RESPONSE
		<p>anticipation for the event. The outcomes of the Asia-Pacific Day for the Ocean also provided a regional perspective to inform the 2020 UN Ocean Conference.</p>
3	FAO	<ol style="list-style-type: none"> 1. As previously noted, FAO has a comprehensive portfolio of CD activities which includes: training and training of trainers (TOT), coaching and mentoring, organizational development, support to informal networks, and South South cooperation agreements. FAO Nansen programme is the largest dedicated scientific research and capacity development activity of the Fisheries Division. 2. For more than 40 years the programme, "Supporting the Application of the Ecosystem Approach to Fisheries Management considering Climate and Pollution Impacts" has been providing an opportunity for coastal developing countries to assess and manage their fisheries for a sustainable use of the oceans. The goals and objectives of the programme evolved over time, responding to new global challenges and the needs of recipient countries. Current outcomes are as follows: <ul style="list-style-type: none"> — Outcome 1: Fishery research institutions provide relevant and timely scientific advice for management; — Outcome 2: Fisheries management institutions manage fisheries according to the EAF principles — Outcome 3: Fisheries research and management institutions have appropriate human and organizational capacity to manage fisheries sustainably — Capacity building is an important and cross-cutting component of the Nansen Programme and is therefore integrated across the planned outcomes and outputs of the Programme. 3. Capacity building is an important and cross-cutting component of the Nansen Programme and is therefore integrated across the planned outcomes and outputs of the Programme. See also: Nansen science plan - http://www.fao.org/3/cb2432en/CB2432EN.pdf 4. The research vessels named Dr Fridtjof Nansen are the core of a unique science and management programme that for over four decades has been working to meet the challenges of a changing marine environment for a sustainable use of the oceans. Norad has been the owner of the three research vessels since the start in 1974 5. FAO has been collaborating with the Norwegian Agency for Development Cooperation (Norad) and the Institute of Marine Research (IMR) of Bergen, Norway for all this period for the successful implementation of previous phases of the Nansen Programme, undertaking various roles
4	UNEP	
5	ILO	
6	IMO	<ol style="list-style-type: none"> 1. IMO has developed an Integrated Technical Cooperation Programme (ITCP) which is designed to assist Governments which lack the technical knowledge and resources that are needed to operate a shipping industry safely and efficiently. 2. The ITCP is designed to assist developing countries to effectively implement international maritime rules and standards in a harmonized manner in accordance with IMO's global mandate "to promote safe, secure, environmentally sound, efficient and sustainable shipping through cooperation". Thus, the ITCP, underpinned by the technical cooperation mission objectives, is developed in response to the technical assistance needs of Member States while, at the same time, methodical planning ensures the relevance, transparency, effectiveness

No.	Non-UN IGOs, NGOs	RESPONSE
		<p>and efficiency of the technical assistance provided. Through implementation of the ITCP, IMO addresses the objectives of strengthening regional maritime competencies and promoting maritime development across the globe.</p> <p>3. Refer IMO website link: https://www.imo.org/en/OurWork/TechnicalCooperation/Pages/Default.aspx IMO, through the Department of Partnerships and Projects (DPP) , UNDP and the Global Environment Facility (GEF) have also pioneered the “Glo-X model” of program design and implementation for marine environmental and energy efficiency projects under which capacity development has been a key component. These projects include:</p> <ul style="list-style-type: none"> – the Global Ballast Water Management Project (GloBallast) – the Global Maritime Energy Efficiency Partnerships Project (GloMEEP) – the Global Biofouling Project (GloFouling). – It also includes the recently initiated the GloLitter Partnerships Project (GloLitter) which will help developing countries to identify opportunities to prevent and reduce marine litter, including plastic litter, from within the maritime transport and fisheries sectors, and to decrease the use of plastics in these industries. <p>Refer IMO DPP website link for information on partnership projects: https://www.imo.org/en/OurWork/PartnershipsProjects/Pages/default.aspx Please find links and embedded pdf documents containing further relevant information below:</p>
7	ISA	<p>1. For the most part, capacity-building and training programmes implemented by ISA have been an integral feature of the mandate of the ISA, as further defined under the 1994 Agreement as well as the rules, regulations and procedures adopted by ISA. Since 2000, different programmes and initiatives have been developed and implemented by ISA to strengthen the capacities of developing States and technologically less developed States¹². These are the Contractor Training Programme (CTP),¹³ the Endowment Fund for Marine Scientific Research (EFMSR) in the Area 14 and the Internship Programme¹⁵. As of today, more than 400 individuals have benefited from these innovative and state- of-the-art schemes.</p> <p>2. In addition to these three programmes, a series of additional activities have been undertaken since 2017 to reinforce the action of ISA in building the capacities of its Members. Most of these activities have so far been carried out in the context of the implementation of the Voluntary Commitments registered by ISA at the 2017 UN Ocean Conference held in New York. Recently, ISA engaged in two new initiatives that also aim at building the capacity of its members. One related to the establishment of regional training centers¹⁶ and another one related to the launching of the ISA Junior Professional Officer programme.</p>
8	CBD	
9	UNDP	
10	UNIDO	
11	UNHRLSS	

No.	Non-UN IGOs, NGOs	RESPONSE
12	WB	
13	WMO	<ol style="list-style-type: none"> 1. Observations: tide gauges training in maintenance; regular annual DBCP in-region training workshops on ocean observations and data applications in modeling and forecasting services for societal benefits from 2010 for Pacific Islands, West Indian, and Northwest Pacific regions; 2. Data management: marine and climate data utilization; 3. Prediction/Forecasting Systems: Ocean satellite tools and products -global; Severe Weather Forecasting Projects (SWFP) that includes training in NWP outputs interpretation, use of products from GDPFS Centres, verification and dissemination of forecasts; SWFP linked to services with regard to relationship with media and civil protection Agencies to assist with interpretation and use of forecasts for decision-making); 4. Services: Marine Services Course (2020 to 2024) - blended course with two parts (online and face to face workshops) for met services to self-assess their capacity in delivering marine and coastal services, and addressing the identified gaps. Marine and Coastal service survey 2018. Competencies - marine met; TC forecasting. IICWG; 5. Public awareness videos; WMO-IMO Symposium - recommendation for Capacity Dev; Joint JCOMM/TCP Training on Waves/Storm Surge (1990s to 2012); 6. International Workshop on Waves, Storm Surges and Coastal Hazards (and its predecessors) - 2019, 2017, 2015, 2013, 2011, 2009 - support to LDC and SIDS reps. 7. Training on data analysis, visualizing the results, Quality Management, toolkits for climate monitoring (past and present climate); 8. Research: Ocean-Atmos interaction with regard to cyclone formation; 9. General: Public awareness of DRR and early warnings; Continuing education through staging of training events in coordination with WMO Regional Training Centres and collaborating partners.
14	UNCTAD	
15	UNESCO	Regular regional and national meetings on policy development and trainings in underwater archaeology.
16	UNDOALOS	A complete range from awareness raising briefings to 9-month fellowships, all demand driven and covering the full range of oceans and the law of the sea subjects, including the science-policy interface.
17	UNFCC	
18	CMS	
19	DESA	<ol style="list-style-type: none"> 1. UN DESA capacity development support prioritizes five capacity areas deemed essential to enable countries to implement and monitor progress towards the 2030 Agenda for Sustainable Development: <ul style="list-style-type: none"> – Policy Coherence – Evidence based Policy – Social Inclusion – Means of implementation

No.	Non-UN IGOs, NGOs	RESPONSE
		<ul style="list-style-type: none"> – Institutions, Integrated & Inclusive Approaches – Examples of core capacity development activities for UN DESA Division of Sustainable Development Goals include; Activities to integrate SDGs into national plans and strategies <p>2. Enhancing the science policy-interface through:</p> <ul style="list-style-type: none"> – Dissemination of the 'The Global Sustainable Development Report' (GSDR); – Capacity development projects with the SIDS Unit
20	UNOPS	
21	CITES	
22	IEAE/MEL	
23	IHO	<ol style="list-style-type: none"> 1. IHO input to projects championed by IMO and other organizations; 2. IHO advisory visits 3. Regional Visit of technical Teams 4. Technical Workshops 5. Courses on hydrography, cartography and MSI 6. IHO and regional assistance in coordination of regional survey, charting and MSI projects, including advice on liaison with funding agencies and with industry.
24	OECD	
25	EC/DG	
26	ICES	
27	PICES	
28	SPREP	
29	SPC	
30	CPPS	
31	SARGASO	<ol style="list-style-type: none"> 1. http://www.sargassoseacommission.org/about-our-work/workshops/american-eel-range-states-workshop; 2. http://www.sargassoseacommission.org/about-our-work/workshops/third-range-states-workshop-on-the-european-eel
32	OSPAR	
33	HELCOM	
34	NAIROBI & ABIDJA COMMISSION	

No.	Non-UN IGOs, NGOs	RESPONSE
35	CARTANEGA	
36	IORA	
Q.4	What are the possible gaps that you, as global programme/regional subsidiary body, have identified in the current IOC CD Strategy, particularly taking into account the Decade objectives and expected outcomes?	
1	WTO	
2	UNESCAP	There is an opportunity to join forces with IOC Sub-Commission for the Western Pacific (WESTPAC) to develop and deliver robust capacity development programs in the regional, maximizing resource utilization including expertise and infrastructure across Asia-Pacific.
3	FAO	No gaps identified
4	UNEP	
5	ILO	
6	IMO	<ol style="list-style-type: none"> 1. In relation to the global, intergovernmental processes supporting SDG 14, the COVID-19 pandemic has posed severe challenges, and highlighted our dependency on the marine environment and many are relying on a growing Blue Economy to facilitate the recovery. 2. From the perspective of shipping, IMO believes that it is possible to have an inclusive, efficient and sustainable recovery, with strengthened resilience and efficient facilitation of trade as the ultimate goal. As we strive for a sustainable COVID-19 recovery, we must recognize and give increased priority to the breadth of environmental considerations and see this as an opportunity to “build back better”, while taking advantage of scientific and technological advances that will no doubt accelerate through the Decade of Ocean Science. 3. The following issues could be addressed in collaboration with IOC: <ul style="list-style-type: none"> – Increased inter-agency collaboration and the facilitation of data and information amongst UN agencies – Access to research (e.g. WMU, IMLI) and identification of research priorities – Identification of knowledge and training gaps and how to address these – Increasing visibility which in turn will lead to increased awareness and ocean literacy
7	ISA	<ol style="list-style-type: none"> 1. A major gap in both IOC and ISA CD strategy is the absence of initiatives that focus on the capturing and storage of scientific DATA. Data management is viewed as part of Information Technology and not part of Ocean Science. Greater focus needs to be made in relation to data management and the transfer and dissemination of data as indicated in Strategic research priority. 2. The development of strategic partnerships with existing national and regional institutions and cooperation among UN organizations, supported by broader participation of member States would be essential to promote institutional capacity, allowing long-lasting impact of capacity development of individuals from developing States. Although not identified as “gaps”, it would probably important to ensure that activities designed and implemented in relation to the conduct of marine scientific research undertaken in national jurisdictions, when relevant, can be jointly organized with ISA to address needs and priorities of member States.

No.	Non-UN IGOs, NGOs	RESPONSE
8	CBD	
9	UNDP	
10	UNIDO	
11	UNHRLSS	
12	WB	
13	WMO	<ol style="list-style-type: none"> 1. Blended approach to training – online and face to face. Technology and human resources 2. Building capacity in developing countries and SIDS (across the value chain) 3. Connecting the regional training between WMO and IOC - and developing core packages for the regional needs 4. Consideration of the connection to the private sector and partnering training opportunities 5. Sustainability – constant challenge and we need some evaluation of the CD – go beyond 10 years 6. Linking the WMO and IOC Capacity Development strategies (and opportunity to collaborate in the current drafting of the IOC Strategy) 7. Linking the JCB to the respective WMO and IOC Capacity Development Working Group and Panels, respectively 8. Mapping of Capacity development – there are gaps (eg. polar regions...) 9. Improve communication and awareness; ocean literacy, addressing all communities including public and decision-maker 10. Infrastructure gaps in observation stations and platforms, capacity in data acquisition and processing. 11. Underlining the interlinkages and feedbacks between the ocean and atmosphere, WMO has recognized the first marine vessel, and thus the first mobile station, as a regional station in its extensive Global Atmosphere Watch (GAW) network, which seeks to understand the short-term variability and long-term trends in the composition of the atmosphere. Onboard Australia's Marine National Facility's Research Vessel (RV) Investigator, operated by the Commonwealth Scientific and Industrial Research Organization (CSIRO), the instruments for dedicated atmospheric composition measurements collect data on a permanent basis, and make them available through the GAW World Data Centres. Equipping more vessels with atmospheric composition measurements would increase available data of the boundary layer between air and ocean in some of the most pristine and remote regions. This would require enhanced training requirements for staff onboard the vessels to carry out high quality measurement.
14	UNCTAD	
15	UNESCO	<ol style="list-style-type: none"> 1. Establish the necessary knowledge base to facilitate cooperation between marine scientists and underwater archaeologists 2. Undertake a mapping of projects in underwater cultural heritage that use marine sciences to retrieve historical and environmental data contained in archaeological contexts, of marine science projects that use social and historical data in their studies, and of institutions implementing these projects

No.	Non-UN IGOS, NGOs	RESPONSE
		<ol style="list-style-type: none"> 3. Analyze projects, common trends and best practices in knowledge and data collection and use in order to identify existing connections and potential areas of collaboration between marine scientists and underwater archaeologists as well as knowledge gaps in ocean and heritage sciences 4. Develop an open access platform to share the results of the above mapping and enable marine scientists and underwater archaeologists, as knowledge generators and users, to connect, exchange and cooperate 5. Support the integration of knowledge and data generated by underwater archaeological research into oceanographic scientific research to understand past human interactions with the ocean, climate change, sea level rise and other trends affecting the ocean 6. Develop transdisciplinary collaboration through joint and cross-training programmes aiming to train underwater archaeologists in ocean research and marine scientists in underwater archaeology 7. Facilitate the sharing of underwater archaeology research results in ocean observatory systems and networks to bridge data gaps 8. Deepen knowledge exchanges between marine scientists and underwater archaeologists and encourage underwater archaeologists to engage with the science-policy interface through participation in interactive scientific dialogues, conferences and webinars 9. Contribute to a holistic mapping of oceans that comprise natural, cultural and historical resources with a view to supporting integrated ocean management solutions 10. Participate in marine spatial planning initiatives through engagement with sectoral marine spatial managers, in particular marine and coastal protected area managers and marine tourism and recreation managers, and build capacities of marine spatial planning professionals in underwater heritage sites management 11. Encourage underwater archaeologists to share data resulting from research activities with institutions specialized in hydrographic and bathymetric surveys 12. Promote ocean protection and a more responsible and sustainable use of its natural and cultural resources through ocean literacy 13. Use the symbolic power of underwater cultural heritage to advocate for ocean protection, raise awareness on the impact of human activities and reconnect people with oceans through photo exhibitions, videos and digital communication materials feeding into the Decade's communication strategy 14. Invite underwater cultural heritage figures to become part of the "Generation Ocean" brand, use it to share testimonials on the importance of their work for oceans and disseminate key messages on the need to protect marine cultural resources 15. Create a photobank to show the impact of human activities and natural phenomena (fishing, pollution, tourism and recreational diving, climate change, marine erosion, etc.) on oceans and underwater cultural heritage for use in education and awareness-raising
16	UNDOALOS	Perhaps less with respect to gaps, and more so as to leverage our complimentary in mandates: providing jointly training on the full spectrum of the science-policy interface; and providing demand-based training in MSR as we have done in the past.
17	UNFCC	
18	CMS	

No.	Non-UN IGOs, NGOs	RESPONSE
19	DESA	<ol style="list-style-type: none"> 1. The use of regional sub-commissions and regional committees to assist in the planning, implementation and monitoring of the strategic plans. Existing ocean science databases of IOC for CD programmes on ocean data collection and dissemination. 2. The development and/or delivery of decision-making support tools and inclusive stakeholders engagement processes for trade-offs development, consensus building and integrated solutions in SIDS coastal development planning
20	UNOPS	
21	CITES	
22	IEAE/MEL	
23	IHO	To support the creation and maintenance of interoperable maritime datasets in cooperation with other International/Intergovernmental Organizations.
24	OECD	
25	EC/DG	
26	ICES	
27	PICES	
28	SPREP	
29	SPC	
30	CPPS	
31	SARGASO	We do not have such a programme. However the Commission has just been awarded a \$3m GEF grant for an ecosystem assessment and the development of a Strategic Action Programme for the high seas ecosystem - which will involve developing country partners, such a Dominican Republic and Bahamas.
32	OSPAR	
33	HELCOM	
34	NAIROBI & ABIDJA COMMISSION	
35	CARTANEGA	
36	IORA	
Q.5	Are there any elements that you, as global programme /regional sub subsidiary body, want to propose as additional components in the revision of the IOC CD strategy? Please justify.	
1	WTO	

No.	Non-UN IGOs, NGOs	RESPONSE
2	UNESCAP	<ol style="list-style-type: none"> 1. As part of ESCAP's Integrated approaches, our IOC's capacity development strategy could link research and analytical work with practical solutions strengthening work supporting the delivery of Sustainable Development Goal 14 and its synergies with other SDGs. 2. ESCAP developed an accelerator methodology for the implementation of SDG14, optimizing development benefits aligned to national priorities through the identification of pivotal interventions with a positive multiplier effect for the delivery of the 2030 Agenda. We plan to conduct more capacity development using this methodology in different countries across the region. 3. Furthermore, within capacity development programs, there is an opportunity to develop joint Ocean-related knowledge products, such as technical papers and policy briefs for the benefit of member States and relevant stakeholders.
3	FAO	Nothing to add
4	UNEP	
5	ILO	
6	IMO	<p>Investment in research projects: For example, in 2019, WMU, an IMO maritime centre of excellence, established a research project on Empowering Women for the United Nations Decade of Ocean Science for Sustainable Development, supported by the Fisheries and Oceans Canada. The project investigates tools and pathways for increasing gender equality within which women are empowered in ocean sciences. The project has two separate but interrelated strands, the role of gender equality and empowerment of women in the conduct and delivery of ocean scientific research, and the role of women in the delivery of ocean science and governance-related advice for regulatory and other purposes, along with the mediation of ocean science outcomes including by means of ocean science diplomacy. The research outcomes arising from these two strands of inquiry will inform the formulation of a Strategy and Action Plan for Gender Empowerment in the Decade of Ocean Science for Sustainable development:</p> <p>https://www.wmu.se/project/empowering-women-for-the-united-nations-decade-of-ocean-science-for-sustainable-development</p>
7	ISA	<ol style="list-style-type: none"> 1. It would be essential and important to avoid duplications and ensure synergies of activities, resources and partnerships. These synergies should also integrate standardized scientific methodologies and approaches, including access to data and information across ocean realms to allow informed decisions for sustainable development. 2. One possible core element to be added to the IOC CD strategy is to develop mechanisms for monitoring, evaluation and learning to assess the quality and impact of the capacity development activities. These mechanisms would benefit from coordinated approaches between ISA and IOC to address similar targets.
8	CBD	
9	UNDP	
10	UNIDO	
11	UNHRLSS	
12	WB	
13	WMO	<ol style="list-style-type: none"> 1. Observations: International Port Met Officer training workshops - every 4 years; GOOS webinars; OCG Cap Development Plan (since 2018?). DBCP CD Task Team (annual since 2010):

No.	Non-UN IGOs, NGOs	RESPONSE
		2. DBCP CD Task Team (annual since 2010): Data Management: <ul style="list-style-type: none"> – Ocean SITES MetaData Training Telecos. – Prediction/Forecasting Systems: atmos-ocean-ice coupling in seamless forecasting – Services: Coastal Management, specifically Coastal Inundation Forecasting Initiative (CIFI) – Research: Involvement of Early Career Scientists in CLIVAR Workshops on Sources and Sinks of Ocean Mesoscale Eddy Energy; – Workshop on WCRP Grand Challenge on Regional Sea Level Change and Coastal Impacts and Climate Service; ICTP-CLIVAR Summer School on Oceanic Eastern Boundary Upwelling Systems (2019) 3. General: WMO/IMO/IHO/IOC/IALA CD group - annual meeting; JCOMM CD Survey (2016-2017) and JCOMM CD Vision 2017
14	UNCTAD	
15	UNESCO	1. Communicate about heritage and cultural issues: 2. Humans have always interacted with the ocean. Underwater cultural heritage is the memory of this relationship and is what connects us with the ocean. 3. Underwater cultural heritage needs to be preserved to understand our past relationship with the ocean and forecast our future with it. An example is the abundant information on past climate change contained in UCH. 4. Underwater cultural heritage and its natural environment form one indivisible ecosystem. Damaging one puts the other at risk. 5. Underwater cultural heritage is irreplaceable. Ocean productivity should not jeopardize its long-term protection.
16	UNDOALOS	As science is an integral part of the legal and institutional ocean affairs arrangements at all scales of governance, it may be opportune to work collaboratively on needs assessments, so as to avoid fragmentation of capacity-building and to take advantage of synergies as per #4.
17	UNFCC	
18	CMS	
19	DESA	1. Policy coherence with regards, not only to existing ocean research priorities, but to other sustainable development policies, to consider possible synergies and resources that could be leveraged for ocean priorities. 2. Joining forces and approaches to combine qualitative as well as quantitative tools for decision-making support and evidence-based policy making in SIDS coastal development. Example of tools: marine spatial planning, integrated coastal zone management schemes, marine protected areas, integration of marine indigenous knowledge and science in sea-use and coastal planning, natural accounting, etc... It will also be strategic to leverage UNESCO sites in SIDS (GeoParks, Biosphere reserves and World Heritage sites) to promote the use of the decision support tools in order to support integrated coastal development in SIDS. Best practices and lessons learned from those sites can be used and replicated in another SIDS. SIDS can become “sustainable coastal development and innovation hubs”.

No.	Non-UN IGOS, NGOs	RESPONSE
		<p>3. More visible alignment with the 2030 Agenda, Paris Agreement and post-2020 Biodiversity Framework; collaboration in CD programmes to help member states develop science-based solutions and a synergistic approach to address ocean challenges.</p> <p>4. How to help indigenous people to collect and document their traditional knowledge scientifically and incorporate traditional knowledge in ocean science organically.</p>
20	UNOPS	
21	CITES	
22	IEAE/MEL	
23	IHO	<p>The elements that could be added in IOC CD strategy as additional Actions related to the Activities and then to the Outputs expected, are as follows:</p> <p>a. To develop, in collaboration with other International/Intergovernmental Organizations - of interoperable and open-access data platforms and services;</p> <p>b. To support the creation and maintenance of interoperable maritime datasets.</p> <p>Both components aim to a common and standardized international approach to the sustainable knowledge of the oceans.</p>
24	OECD	
25	EC/DG	
26	ICES	
27	PICES	
28	SPREP	
29	SPC	
30	CPPS	
31	SARGASO	<p>We notice a lack of knowledge of ocean governance issues - which our project will try to address in collaboration with the Ocean University in Brest France and the Marviva Foundation in Costa Rica.</p>
32	OSPAR	
33	HELCOM	
34	NAIROBI & ABIDJA COMMISSION	
35	CARTANEGA	
36	IORA	

No.	Non-UN IGOs, NGOs	RESPONSE
Q.6	How should the IOC CD strategy contribute to the Decade and its implementation plan?	
1	WTO	
2	UNESCAP	ESCAP may be in a position to provide in-kind support and in-kind resources. Namely, as co-chair of the Global Ocean Accounts Partnership, as co-chair of the Regional Coordination Platform of the UN System, and via professional support from our staff, and at the operational level by hosting and co-organizing meetings, workshops, stakeholder conferences or Decade board meetings, optimizing the resources of the United Nations Conference Center in Bangkok and our five Sub-Regional Offices across Asia and the Pacific.
3	FAO	FAO's programmes will contribute to addressing a majority of the Challenges identified by the Decade. The greatest contribution will be toward Challenge 3 - Generate knowledge, support innovation, and develop solutions to optimize the role of the ocean in sustainably feeding the world's population under changing environmental, social and climate conditions.
4	UNEP	
5	ILO	
6	IMO	<ol style="list-style-type: none"> 1. Sustainable maritime transportation is a cross-cutting issue and, as such, is an important enabler for most of the SDGs. IMO's Strategic Plan for 2018-2023 underlines its full commitment to the 2030 Agenda and to supporting Member States in their efforts to implement the SDGs at national level. 2. The work of IMO is central to sustainable development, and science as is a principal component of the work of IMO. Therefore, since the initial request from IOC of UNESCO in 2017, IMO has expressed its willingness and intention to join IOC and its partners in the efforts to prepare and implement the Decade of Ocean Science. 3. The IMO Member States, through both the MEPC and the governing bodies of the London Convention and Protocol, have expressed that the Decade could be a vehicle to support IMO's work, in support of marine environmental protection in the context of Agenda 2030, and that work undertaken under the Decade could be complementary and mutually beneficial to those organizations involved. 4. In 2019, IMO strengthened its commitment to the SDGs by adopting an IMO Secretariat SDGs Strategy. This strategy is for IMO to identify, analyse and address emerging issues and opportunities to further support Member States in their implementation of the SDGs through a variety of actions. The Strategy specifically calls for the development of maritime SDG specific, measurable, achievable, relevant and timely (SMART) indicators to make IMO's work more tangible towards implementation of SDGs, with a focus on IMO's priority SDGs, namely SDGs 5, 9, 13 and 14 and overarching SDGs 16 and 17. 5. Additionally, IMO assists Member States in including maritime considerations in their national implementation of the SDGs by supporting maritime authorities/stakeholders in understanding and contributing to the newly established United Nations Sustainable Development Cooperation Framework (UNSDCF) through targeted workshops. IMO has developed a Secretariat SDGs Visibility and Communication Strategy with the overall aim of strengthening the contribution of IMO and the shipping industry to the 2030 Agenda. Moreover, targeted communication material has been produced, highlighting success stories and providing concrete examples of IMO's contribution to achieving the SDGs.
7	ISA	As indicated above, the scientific objectives of the UN Decade of Ocean Science for Sustainable Development are at the core of ISA's specific and exclusive mandate assigned to it by UNCLOS and the 1994 Agreement. Therefore, the implementation of the

No.	Non-UN IGOS, NGOs	RESPONSE
		activities, projects and programmes identified by ISA in cooperation with its partners to achieve the outputs of the ISA Action Plan developed in support of the UN Decade of Ocean Science for Sustainable Development will necessarily contribute and strengthen the elements identified in the UN Decade and its Implementation Plan.
8	CBD	
9	UNDP	
10	UNIDO	
11	UNHRLSS	
12	WB	
13	WMO	<ol style="list-style-type: none"> 1. WMO is committed to contribute to the Decade, especially for a Safe Ocean and a Predicted ocean through its massive investment in ocean observation by GBON and SOFF initiative; global and regional training on marine and other ocean-related hazards. 2. WCRP Ocean related activities (in particular CLIVAR) are involved in a number of Ocean Decade proposals.
14	UNCTAD	
15	UNESCO	<ol style="list-style-type: none"> 1. Underwater cultural heritage experts, networks and institutions could participate in IOC events. They could thus share knowledge, raise awareness regarding their activities and research results etc. 2. The network around the 2001 Convention can also actively promote the Decade and its Implementation plan with a focus on cultural heritage issues. The network can create Decade actions and communication campaigns.
16	UNDOALOS	The CB Programme of DOALOS supports and reinforces stakeholders' capacity to develop and implement the legal and institutional governance frameworks for the oceans, including for BBNJ, the ocean-related elements of the 2030 Agenda, and reinforces to role of science in ocean governance at all levels through the science-policy interface. Furthermore, the work undertaken by the Regular Process, and the WOA itself, as well as in the context of supporting the BBNJ process, are critical elements of the Programme and directly support the Decade's outcomes
17	UNFCC	
18	CMS	
19	DESA	<ol style="list-style-type: none"> 1. The UN DESA CD can contribute to the Decade and its implementation plan in several ways. 2. Support in the area of evidence based policy which includes strengthening data and statistical systems and assisting countries in building their ability to collect, manage, analyze, and use data in diverse processes can contribute to both ocean literacy and analyzing transformative science based ocean solutions, which if implemented could provide an increased safe, resilient and productive ocean. 3. Similarly, the UN DESA CD work in social inclusion, ensuring the needs of disadvantaged social groups such as indigenous peoples, persons with disabilities, older persons, youth and women are understood and addressed can remove barriers to full gender, generational, and geographic diversity, and ensure an equitable and accessible ocean for all.

No.	Non-UN IGOs, NGOs	RESPONSE
		<p>For example, the Abyssal initiative for Blue Growth seeks to advance the Blue Economy through the promotion of socio-economic benefits for developing countries, including SIDS, and increasing scientific knowledge and research capacity enable SIDS to benefit fully from sustainable development of their deep-sea mineral resources. UN DESA in collaboration with the International Sea Bed Authority held a series of capacity building meetings, summits and workshops on the Blue Economy in the Pacific, during the period 2017 - 2018 to further explore and highlight the potential contribution of the deep-sea mining industry to support national and regional development priorities, with the view to ISA-UNDESA partnering with Pacific Small Island Developing States (PSIDS) to promote an ongoing capacity building initiative for PSIDS. Such initiatives can aid in providing a productive ocean to SIDS communities and enhance understanding of the value of the ocean in relation to sustainable development so that member states can ensure sufficient management and protection of the marine environment.</p> <p>4. By strengthening the science-policy interface through the development and/or delivery of decision-making support tools and inclusive stakeholder's engagement processes for evidence-based policy and trade-offs development, consensus building and integrated solutions in SIDS coastal development planning. Also, marine science will be essential to better identify and address climate and environment related security risks faced by SIDS in coastal areas.</p>
20	UNOPS	
21	CITES	
22	IEAE/MEL	
23	IHO	<ol style="list-style-type: none"> 1. The IHO has actively contributed with the IOC in preparing the Decade Implementation Plan. 2. In synthesis, with reference to the three Decade objectives, the following are the contributions of the IHO CB strategy and programmes: <ul style="list-style-type: none"> – Decade Objective 1 - IDENTIFY REQUIRED KNOWLEDGE FOR SUSTAINABLE DEVELOPMENT: The IHO as intergovernmental organization assists the implementation of observation measures through technical standardization, the facilitation of inter-regional cooperation and the coordination of capacity building activities. A typical action to promote new technology is the campaign to designate hydrography as enabler for autonomous technologies. Though hydrography is mainly regarded to be focused to sea survey and sea cartography this discipline is in no way limited to. In fact, the extensive interpretation of hydrography as "to measure all the physics of the seas" leaves room for further expansion and offers opportunities for new forms of collaboration with ocean sciences. – Decade Objective 2 - GENERATE COMPREHENSIVE KNOWLEDGE AND UNDERSTANDING OF THE OCEAN: IHO produces standards and guidelines to assist coastal States meet their obligations and requirements, fall under three main themes: <ol style="list-style-type: none"> a. Nautical charts, issued on paper or in digital format (Electronic Navigational Charts), which are produced by national Hydrographic Offices to support safe navigation in accordance with the requirements of SOLAS; b. The maritime component of spatial data infrastructures being developed at the national and regional levels, which includes in particular high resolution bathymetry (depth data) compiled by national Hydrographic Offices; c. The global reference bathymetric data sets developed and made available through the GEBCO project (General Bathymetric Chart of the Oceans) operated jointly by the IHO and the Intergovernmental Oceanographic Commission (IOC) of UNESCO. The General Bathymetric Chart of the Ocean (GEBCO) project is a joint programme that is

No.	Non-UN IGOs, NGOs	RESPONSE
		<p>executed under the governance of the IHO and the Intergovernmental Oceanographic Commission (IOC) of UNESCO. GEBCO produces and makes available a range of bathymetric data sets and products, including the GEBCO Gazetteer of Undersea Feature Names; the GEBCO world map; GEBCO Cook Book; Web Map Services and its lead bathymetric product: a global gridded bathymetric data set.</p> <ul style="list-style-type: none"> – Decade Objective 3 - INCREASE THE USE OF OCEAN KNOWLEDGE: The IHO develops and sets standards and issues guidance which ensure that hydrographic information is available and can be delivered to users through appropriate harmonized and interoperable products and services. The current maintenance of existing standards and the development of new ones are driven by the need to continue to satisfy the SOLAS requirements of enhancing safety of navigational, and more recently, supporting the implementation of “e-navigation”, which is being led by the UN’s International Maritime Organization (IMO). Both elements require easy access to standardized high quality digital geospatial information that can support marine spatial management. Accordingly, the IHO continued to work on its S-100 framework to support the creation and maintenance of interoperable maritime data product specifications compliant with the ISO-19100 series of geographic information standards.
24	OECD	
25	EC/DG	
26	ICES	
27	PICES	
28	SPREP	
29	SPC	
30	CPPS	
31	SARGASO	As above, with a complementary project funded by the French Global Environment Facility (FFEM) due to start in 2021.
32	OSPAR	
33	HELCOM	
34	NAIROBI & ABIDJA COMMSSION	
35	CARTANEGA	
36	IORA	
Q.7	What are the most important global ocean science developments in addition to the UN Decade of Ocean Science for Sustainable Development that the updated IOC CD strategy should recognize and respond to?	
1	WTO	

No.	Non-UN IGOs, NGOs	RESPONSE
2	UNESCAP	One of the challenges during the decade will be to create better synergies with the private sector. Especially regarding scientific and technological developments, the inclusion and cooperation with the private sector may promote sustainable development by enhancing private-public science and policy interfaces. The role of the private sector should be recognized and address appropriately.
3	FAO	Not scientific developments per se, but key UN processes that will rely on sound science to inform decision making in the next Decade:
4	UNEP	
5	ILO	
6	IMO	<ol style="list-style-type: none"> 1. GESAMP and its sponsoring agencies have recognized the need to focus more on assisting UN and regional bodies as well as governments in the analysis of new trends and emerging issues in the context of management and policy implications and to provide guidance and advice on management/policy guidelines. These are conducted based on GESAMP's uniquely independent membership and expert pool of cross-sectoral scientists, socio-economists, governance and legislation experts, etc. GESAMP is therefore ideally placed to review the existing and emerging natural and social scientific information, provide an up-to-date assessment of the meaning of such data and its short and long-term implications, and further provide advice on <ol style="list-style-type: none"> a. any appropriate adaptive or mitigating management actions and b. what further on-going data collection and gap-filling may be required in order to continue to monitor the area/issue of concern. 2. The integration of natural sciences and societal disciplines into a holistic assessment of the marine environment: This is highlighted in the objectives and societal outcomes of the Decade call for the integration of different dimensions (e.g. social, human, environmental). Sustainable resource management requires an understanding of the seas and our use of them via an integrated system which merges the natural and human aspects, therefore conceptual frameworks that integrate human and social sciences into holistic assessments of the marine environment are required. 3. Advances in data and information management: data and information will be central to the achievement of the Decade objectives, and therefore it will be vital for the Decade to utilize the latest advances in this area. Recent developments in ocean observation initiatives are creating a demand for novel means of data management and storage to serve the needs of different audiences. Regionally and globally there is a diverse array of organizations, partnerships and programmes working with data and information compilation, sharing and management. The proposed objectives of such data ecosystem for the decade will not be achieved unless there is consensus and agreement on how the data will be collected, stored and exchanged or shared. This will support a global and multi-disciplinary "data ecosystem". Additionally, access to , and dissemination of, new information will also inevitably lead to increased awareness and ocean literacy without stakeholders including the public which can benefit and leverage support ocean science and sustainability and influence the development of marine science and implementation of marine policy.
7	ISA	Probably the fact that ISA is the primary intergovernmental organization mandated under an international treaty, UNCLOS, assigned with a critical role to promote and enable international cooperation in marine scientific research programme undertaken beyond national jurisdictions, in the Area.
8	CBD	

No.	Non-UN IGOS, NGOs	RESPONSE
9	UNDP	
10	UNIDO	
11	UNHRLSS	
12	WB	
13	WMO	<ol style="list-style-type: none"> 1. Explore better ways of training, learning the lessons from each organization (including from the blended approach), and developing opportunities with the private sector 2. Consider the full value chain when delivering capacity development, to benefit Members/Members Services, at the same time as encouraging the sustainability of capacity development interventions; 3. Connecting the regional training between WMO and IOC - and developing core packages for the regional needs; 4. Map out the present Capacity Development activities and identify gaps that need addressing (e.g., polar regions); and 5. Linking the WMO and IOC Capacity Development strategies (including the opportunity to collaborate on drafting of the IOC and WMO CD Strategies). 6. Connect the WMO Capacity Development Panel and the IOC Group of Experts together.
14	UNCTAD	
15	UNESCO	The protection of underwater cultural heritage.
16	UNDOALOS	There continues to be a growing need at all levels for capacity development in the science-policy framework within and across governance arrangements, including the integration between oceans and climate change, including the implementation of frameworks for ocean science and MSR to fully support the goals under the climate change regime.
17	UNFCC	
18	CMS	
19	DESA	<ol style="list-style-type: none"> 1. Science continues to report on the interlinkages of climate change and biodiversity which have monumental consequences for ocean health. Ensuring that strategies and projects addressing these broad themes are not considered in silos will be important to guard against trade-offs where synergies could be leveraged to great advantage. 2. In conjunction, ensuring Member states are aware and informed of the operations of companies dominating the ocean economy and how their operations may affect their nature and resources of the ocean and coastal areas is important in ensuring corporate accountability and building positive partnerships with the private sector. 3. Lastly, continued efforts to document the oceans species and the marine based data points is imperative to contributing to the understanding of the oceans. It is estimated more than 80% of the ocean remains unexplored and because it's difficult to protect what we don't know, only about 7% of the world's oceans are designated as marine protected areas (MPAs). If not already in place, the synergies between the UN Decade for Ocean Science and the UN Decade for Ecosystem Restoration should be sought. Ocean science informs coastal ecosystem restorations. In that context, the unique vulnerabilities of SIDS should be recognized.

No.	Non-UN IGOs, NGOs	RESPONSE
20	UNOPS	
21	CITES	
22	IEAE/MEL	
23	IHO	<ol style="list-style-type: none"> 1. There is more interest than ever before for our seas and oceans from both governments, industry and the general public. While the FAIR principles have been adopted by many scientific institutes, it will be some time before they are fully incorporated in the way scientists work and operate. While scientific research within one field of ocean science can have great importance, its value is often multiplied many times if it can be combined and analyzed together with other data. Increased international cooperation, working across sectors at all levels, will be necessary to ensure the end-users of ocean knowledge (from the policymaker to the scientist themselves) can easily find, access, combine, analyze and reuse the data. 2. Development of unmanned and / or autonomous sensor platforms will facilitate a huge increase in 24/7 operations worldwide with more sensors at lower cost generating more data that requires increased big data processing capacity. 3. The increased awareness for the necessity to start to take better care of our oceans requires marine spatial planning that is based on easily accessible, combined and georeferenced ocean science. Countries and regions need to (further) develop marine spatial data infrastructures with the necessary data content, information technology (use of open standards), rules and regulations framework and structured coordination / cooperation between stakeholders in order to secure that ocean knowledge is being used to the maximum extent. 4. We need to educate our audience. Should engagement of the general public through social media be part of CD strategy to influence public opinion? E-learning will never fully replace on location education or practice but it provides opportunities to reach those that otherwise might not be educated at all. Developing e-learning capabilities should therefore be part of any CD strategy.
24	OECD	
25	EC/DG	
26	ICES	
27	PICES	
28	SPREP	
29	SPC	
30	CPPS	
31	SARGASO	Wider awareness and understanding of the drivers of the serious impacts of climate change on ocean ecosystems
32	OSPAR	
33	HELCOM	
34	NAIROBI & ABIDJA COMMISSION	

No.	Non-UN IGOS, NGOs	RESPONSE
35	CARTANEGA	
36	IORA	

Intergovernmental Oceanographic Commission (IOC)
United Nations Educational, Scientific and Cultural Organization
7, Place de Fontenoy
75 732 Paris 07 SP, France
Tel.: +33 1 45 68 03 18
<http://ioc.unesco.org>