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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

INFORMATION DOCUMENT

IOC 3RD CAPACITY DEVELOPMENT NEEDS ASSESSMENT SURVEY

SUMMARY REPORT

Summary. The 2022 Capacity Development Needs Assessment Survey, organised by the IOC Group of Experts on Capacity Development, was designed to assess the capacity development requirements of UNESCO IOC member states. As instructed by the 31st Session of the IOC Assembly (2021) the IOC GE-CD has implemented the 2022 CD Needs Assessment Survey in close collaboration with the 3rd volume of the Global Ocean Science Report. The online survey was opened on 1 January 2023 and closed in 17 March 2023.

This information document presents a summary of the survey outcomes, which were expected to contribute to assessing the capacity development needs in ocean science related issues and addressing capacity needs related to the UN Decade of Ocean Science for Sustainable Development 2021-2030. The detailed results contained in this document, as well as detailed responses from countries, are also made available online at https://surveys.ioc-cd.org.

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1. INTRODUCTION

Capacity Development (CD) is an essential tenet of IOC's mission. It enables all IOC Member States to participate in, and benefit from, ocean research and services that are vital to sustainable development and human welfare on the planet. The vision contained in the IOC Capacity Development Strategy 2015-2021 identifies capacity development as the primary catalyst through which IOC will achieve its four high level objectives in the current 2014–2021 IOC Medium-Term Strategy. National ocean related capacity is also essential to build the required national expertise to fully participate in, and benefit from the Sustainable Ocean Economy.

During its 29th Session, the IOC Assembly adopted Decision IOC-XXIX/10.1 establishing the IOC Group of Experts on Capacity Development. The main objectives of the Group of Experts are to assist the global and regional programmes with the implementation of capacity development (CD) needs assessments, the development of related work plans, mobilization of resources, and provide advice on relevant methods and tools to deliver CD. The Group will also advise the Assembly on, and start implementation of, the Transfer of Marine Technology Clearing House Mechanism (CHM) as requested by the IOC Criteria and Guidelines on the Transfer of Marine Technology (IOC/INF-1203), making use, to the largest extent possible, of existing data and information systems already available at IOC.

In order to identify capacity development needs of IOC Member States the Group of Experts designed an online survey. Launched in October 2018 through Circular Letter 2738, the first survey focussed largely on regional needs and those of Small Island Developing States and Least Developed Countries. The results of the survey (Annex VI of IOC/GE-CD-I/3) also assessed the functional needs of a Clearing House Mechanism (CHM) as a tool 'to provide interested users in Member States with direct and rapid access to relevant sources of information, practical expertise in the Transfer of Marine Technology (TMT), as well as to facilitate scientific, technical and financial cooperation to that end'. This finding materialized in April 2020 as the IOC Ocean InfoHub Project that focusses on the development of the CHM/TMT in Latin America and Caribbean region, Africa and Pacific SIDS (see Executive Council document IOC/EC-53/4.3.Doc for detail).

The survey will be repeated every two years. The first survey results made available online at https://surveys.ioc-cd.org were from the 2020 (~2021) and was launched on 30 April 2021, through Circular Letter 2846. The 2022 survey was opened on 4 January 2023 at https://www.surveymonkey.com/r/JQLDQK8 and closed on 10 March 2023. The 2022 results were also uploaded and now available at https://surveys.ioc-cd.org/index.php/2022-survey/.

2. SURVEY DESIGN AND MANAGEMENT

The IOC Capacity Development Needs Assessment 2022 Survey is the third iteration of the biennial exercise started in 2018 (see: results of the 2018 survey in Annex VI of IOC/GE-CD-TT-I/3 and results of the 2020 survey at https://surveys.ioc-cd.org/index.php/2020-survey). Through the survey the IOC Group of Experts on Capacity Development assesses the capacity development requirements of Member States. The information provided will contribute to the holistic understanding of the capacity development needs and requirements. This analysis will be closely observed in the implementation of the IOC Capacity Development Strategy and will serve as a reference in the project development of the Decade of Ocean Sciences for Sustainable Development.

The 2022 Capacity Development Needs Assessment Survey was organised by the IOC Group of Experts on Capacity Development (http://www.ioc-cd.org/gecd) and was designed to assess the capacity development requirements of member countries, in particular Small Island Developing States (SIDS) and Least Developed Countries (LDCs). As instructed by the 31st Session of the IOC Assembly (2021) the IOC GE-CD has implemented the revised 2022 survey. The online survey was opened on 4 January 2023 at https://www.surveymonkey.com/r/JQLDQK8 and closed on 10 March 2023. Some respondents who had difficulty accessing the online questionnaire requested for pdf copies of the questions. These were submitted to the Secretariat and manually encoded their responses in the database.

Informed by the experience and learnings from the first two versions of the CD Needs Assessment Survey, the 2022 survey was designed with shorter and less number of questions on critical capacity development needs of Member States. The questionnaire was closely reviewed and developed with the Global Ocean Science Report, as complementary questionnaires on ocean science capacity at Member States level. Based on the earlier version of the questionnaire used in 2018, the 2020 survey expanded overall the scope of CD stakeholder groups while the third survey sought contributions from Member States through their IOC national focal points.

The CD Needs Assessment survey consisted of 2 main parts: the first was for personal information of the respondents, while the second part contained questions focusing on capacity development based largely on the IOC CD Strategy framework of outputs and activities.

The survey was actively promoted through joint Circular Letter 2919 in English, French and Spanish. The information gathered by this survey were expected to contribute to assessing the capacity development needs in ocean science related issues and will also contribute to addressing capacity needs related to the UN Decade of Ocean Science for Sustainable Development 2021-2030.

3. SURVEY RESPONSES

In total, responses were received from 17 countries as of April 2021. The gender breakdown is 56% male, 44% women. Each Member State of the IOC has one or more official contact points who receive all official communications from the Commission. The IOC National Contact Manual (National Focal Points contact list) is available from THIS LINK.

The data presented is based on the general average. Due to the relatively small sample sizes care must therefore be taken when interpreting the results and making assumptions based on the data presented.

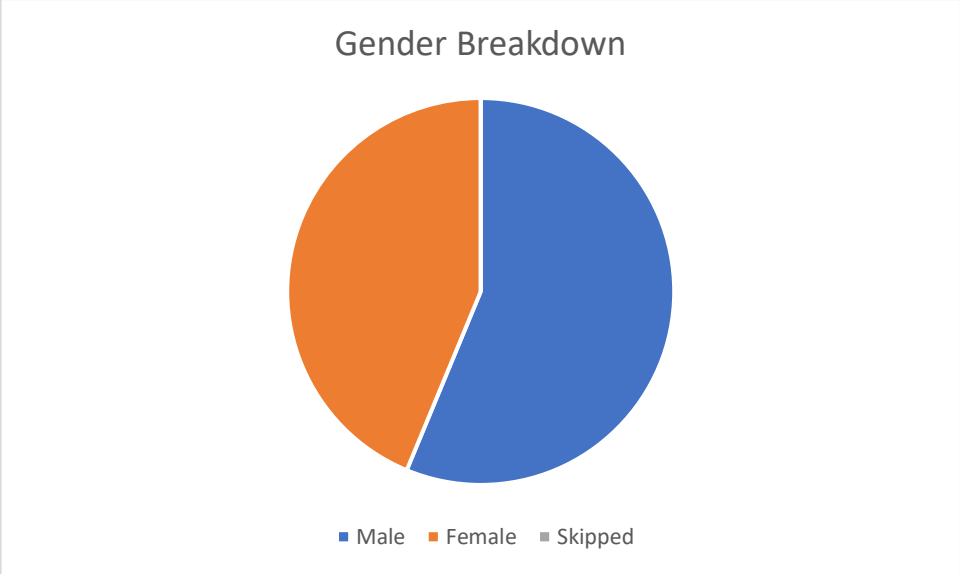
Responses came from 17 out of 150 IOC member states (11%); 13 out of 115 developing country IOC member states (12%). It is noted that out of the 150 IOC Member States (March 2021), 115 are developing countries.

Chile
Colombia
Ecuador
Ecuatorial Guinea
Egypt
Estonia
France
Ghana
Honduras
India
Japan
Kuwait
Myanmar
Poland
Tanzania
Venezuela
Belgium (reiterated inputs to 2018 survey so was not included in the analysis)

The raw data from Survey Monkey were integrated in the database together with the responses which were submitted offline and manually filled in and encoded in the main dataset. Quite different to the 2020 survey, the analysis did not include regional analysis due to the low number of responses.

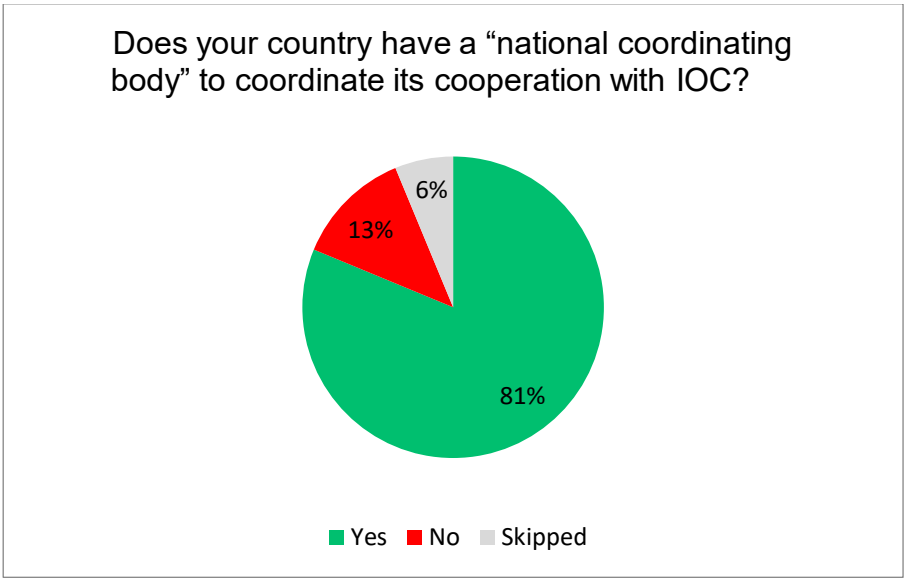
4. SURVEY QUESTIONS

Section 1: Information on the person who filled the survey



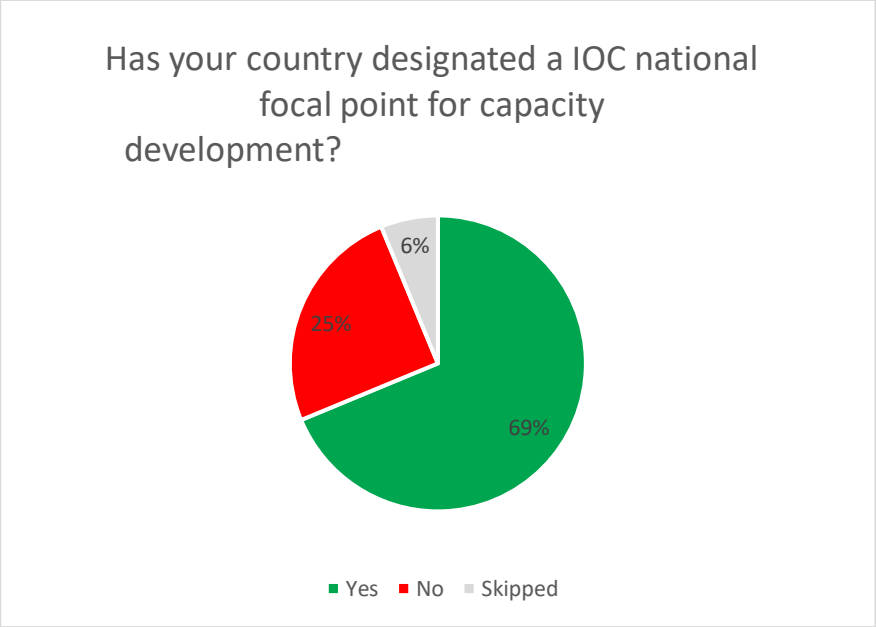
Answer Choices	Responses	
Male	56%	9
Female	44%	7
Skipped	0%	0
	TOTAL	**16**

Q2. Does your country have a “national coordinating body” to coordinate its cooperation with IOC?



Does your country have a “national coordinating body” to coordinate its cooperation with		
Answer Choices	Responses	
Yes	81%	13
No	13%	2
Skipped	6%	1
	TOTAL	**16**

Q2. Has your country designated an IOC national focal point for capacity development?



Answer Choices	Responses	
Yes	69%	11
No	25%	4
Skipped	6%	1
	TOTAL	**16**

The question set for IOC focal points consisted of two sections – respondent's profile in Section 1 and 17 questions in Section 2. The questions in Section 2 asked the focal points to rank critical CD needs which were based largely on the IOC CD Strategy framework. Questions pertaining to Decade challenges, Decade objectives, SDG 14, CD strategy and assessments carried out in their countries, were also included.

5. OVERALL ANALYSIS

The data presented on ranking of top CD needs were based on general average. All the responses were included in the computation. However, due to the relatively small sample sizes care must therefore be taken when interpreting the results and making assumptions based on the data presented.

Top critical CD needs:

Based on the inputs from IOC focal points, the top 3 CD needs included *funding and investment, strengthened international partnerships and regional networks for collaboration, and research vessels and inshore boats.*

In terms of developing capacity in human resources, the top priorities were *higher education degree (BSc-PhD) programmes in ocean science*, *advanced professional development training courses, management training for senior researchers and heads of institution*, and *access to on-board, research vessel-based training*.

In terms of increased access to physical infrastructure, the top priorities were *establishment and maintenance of a register of regional scientific research infrastructure (facilities, instruments, vessels), observation facilities and equipments (remote sensing equipment, buoys, tide gauges, shipboard and other means of ocean observation)* and *technical training for ocean science related to ocean observation.*

In terms of strengthened coordination with global, regional or sub-regional IOC communities and local networks, the priorities were *establishing an effective coordination and communication mechanism between the regional sub- commissions and the global programmes*, and *reinforced budgeting of regional sub- commissions.*

In terms of development of ocean research policies in support of sustainable development, the top priorities were *assistance with the development of national marine science management procedures and national policies* and *sharing information on existing ocean research priorities among government and other organizations*.

In terms of increasing visibility and awareness of ocean research, the top priorities were *support for communicating ocean science research to policy makers* and *technical training for ocean science communication.*

In terms of mobilizing sustained (long-term) resources, the top priority that didn't receive low ranking was *assistance in fostering partnerships to increase in-kind support opportunities.*

Regarding Ocean Decade:

In the context of the Ocean Decade Challenges, the top challenges with greatest CD needs were 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*, 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*, and 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.

As for the Ocean Decade objectives, the top objective considered highly relevant was *Objective 3*: *Increase the use of ocean knowledge and understanding, and develop capacity to contribute to sustainable development solutions* which was ranked consistently as greatest capacity development needs across regions and groups.

Regarding SDG14:

More than half (53%) of the focal points responded that the capacity most lacking to achieve SDG 14 in their country relates the 'capacity to translate science to policy'.

Regarding national CD Strategy and needs assessment:

About half (50%) of the focal points respondents indicated the absence of a national ocean science capacity development strategy. Almost half (43%) of the focal points respondents answered that there has not been any capacity needs assessment conducted in their country.

Please click the group below to jump into their respective sections, or the question below to jump into the detailed results from the overall analysis.

Q10: In your opinion, how useful are the following in terms of mobilising sustained (long-term) resources in your country?

Q11 What other specific support can IOC global and regional programmes (GOOS, IODE, MPR, tsunami, etc.) provide to contribute to addressing your country's CD requirements?

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?

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?

Q14: How would you rate the level of capacity available right now in your country to achieve SDG 14?

Q15: How would you rate the level of capacity available right now in your institution to support the achievement of SDG 14 in your country?

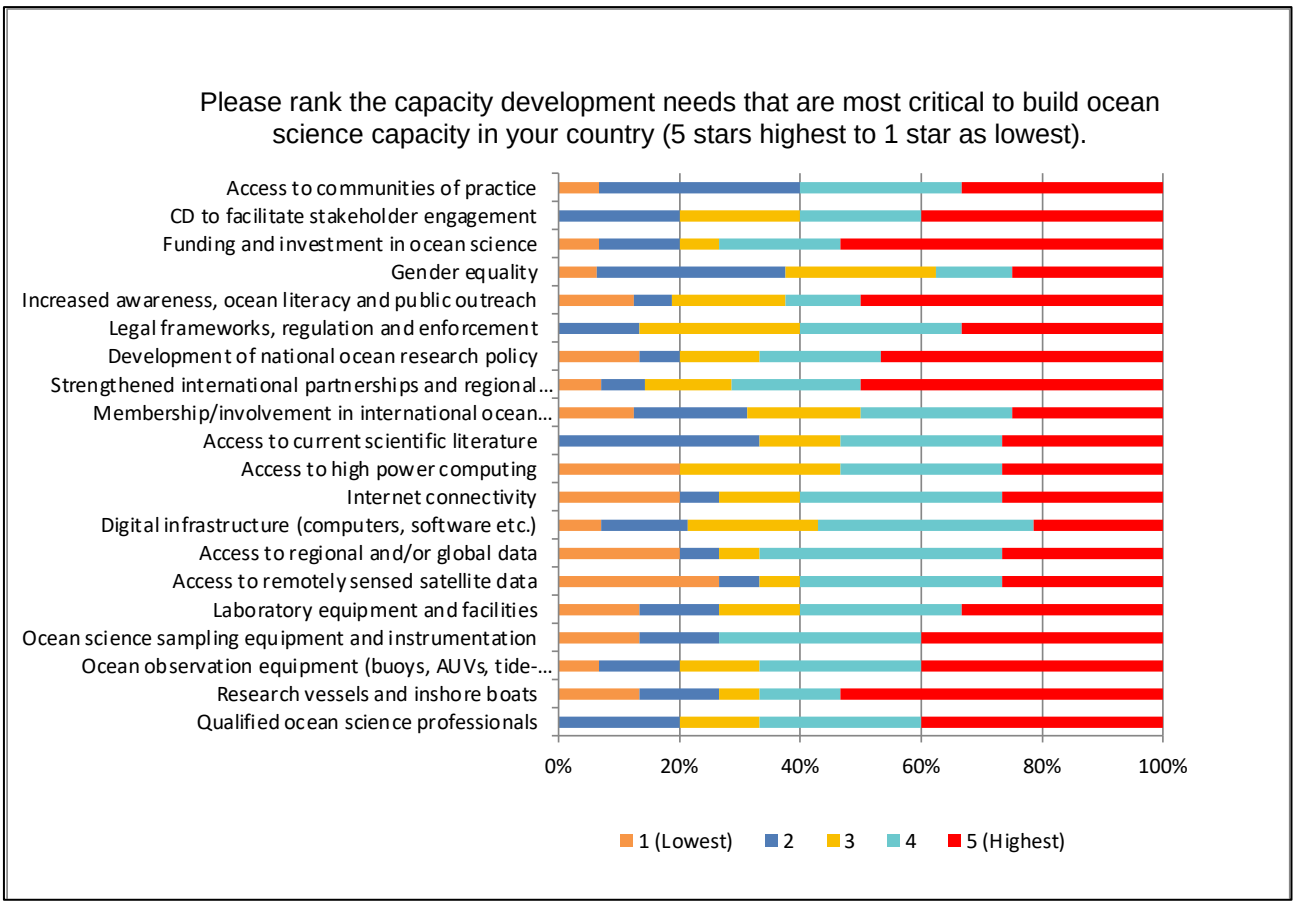
Q16: In your opinion, to what extent are the following aspects of capacity lacking to achieve SDG 14?

Q17: Does your country or institution have a national ocean science capacity development strategy?

Q18: Has your country carried out an ocean science capacity needs assessment?

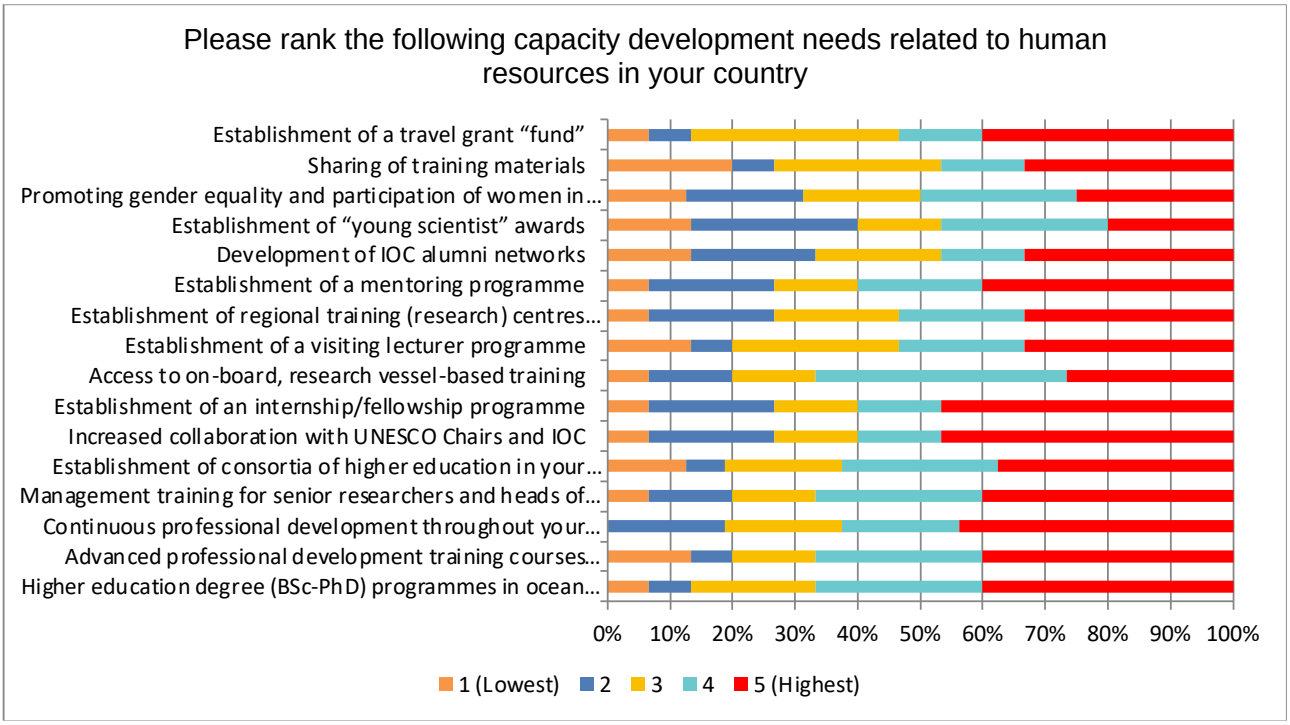
ANNEX 1. FULL RESULTS

Q4: Please rank the capacity development needs that are most critical to build ocean science capacity in your country (5 stars highest to 1 star as lowest).



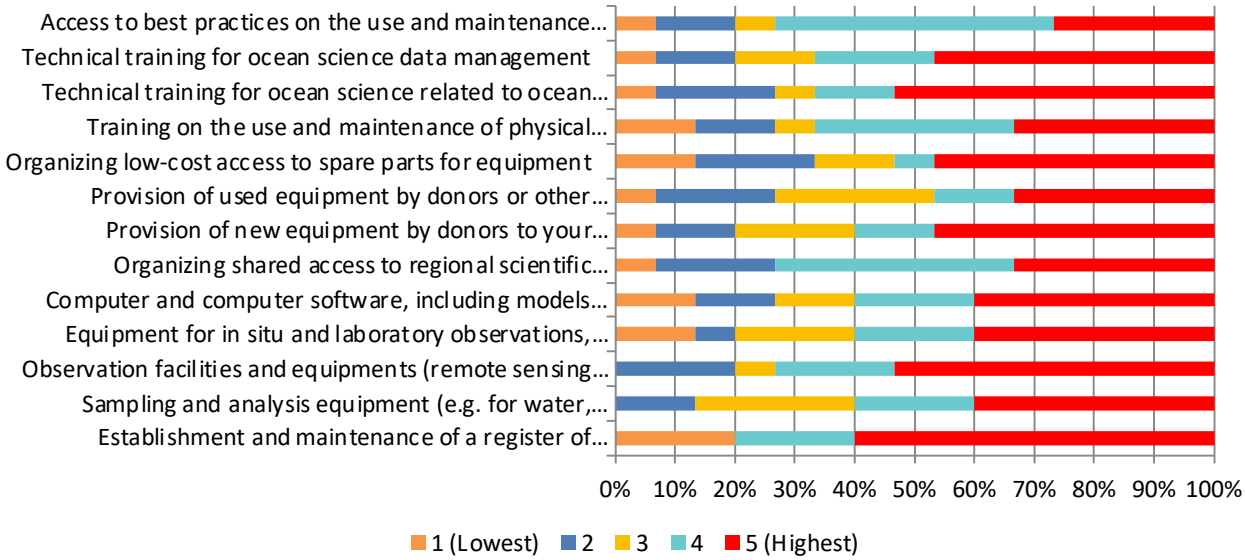
	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
Qualified ocean science professionals	0	3	2	4	6	15
Research vessels and inshore boats	2	2	1	2	8	15
Ocean observation equipment (buoys, AUVs, tide-gauges etc.)	1	2	2	4	6	15
Ocean science sampling equipment and instrumentation	2	2	0	5	6	15
Laboratory equipment and facilities	2	2	2	4	5	15
Access to remotely sensed satellite data	4	1	1	5	4	15
Access to regional and/or global data	3	1	1	6	4	15
Digital infrastructure (computers, software etc.)	1	2	3	5	3	14
Internet connectivity	3	1	2	5	4	15
Access to high power computing	3	0	4	4	4	15
Access to current scientific literature	0	5	2	4	4	15
Membership/involvement in international ocean research communities	2	3	3	4	4	16
Strengthened international partnerships and regional networks for collabor	1	1	2	3	7	14
Development of national ocean research policy	2	1	2	3	7	15
Legal frameworks, regulation and enforcement	0	2	4	4	5	15
Increased awareness, ocean literacy and public outreach	2	1	3	2	8	16
Gender equality	1	5	4	2	4	16
Funding and investment in ocean science	1	2	1	3	8	15
CD to facilitate stakeholder engagement	0	3	3	3	6	15
Access to communities of practice	1	5	0	4	5	15

Q5: Please rank the following capacity development needs related to human resources in your country (from 5 highest priority to 1 lowest priority).



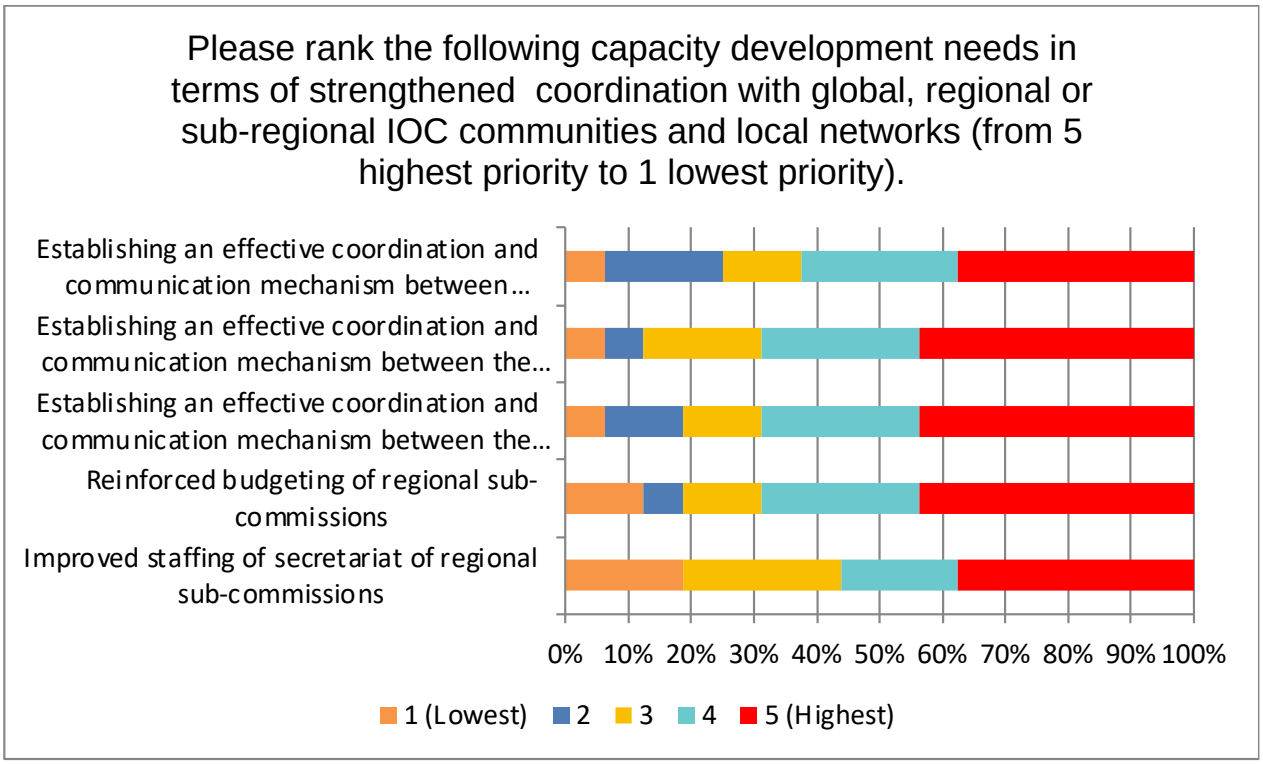
	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
Higher education degree (BSc-PhD) programmes in ocean science	1	1	3	4	6	15
Advanced professional development training courses (specific short cours	2	1	2	4	6	15
Continuous professional development throughout your career	0	3	3	3	7	16
Management training for senior researchers and heads of institution	1	2	2	4	6	15
Establishment of consortia of higher education in your country or region	2	1	3	4	6	16
Increased collaboration with UNESCO Chairs and IOC	1	3	2	2	7	15
Establishment of an internship/fellowship programme	1	3	2	2	7	15
Access to on-board, research vessel-based training	1	2	2	6	4	15
Establishment of a visiting lecturer programme	2	1	4	3	5	15
Establishment of regional training (research) centres relevant to the IOC n	1	3	3	3	5	15
Establishment of a mentoring programme	1	3	2	3	6	15
Development of IOC alumni networks	2	3	3	2	5	15
Establishment of "young scientist" awards	2	4	2	4	3	15
Promoting gender equality and participation of women in ocean science re	2	3	3	4	4	16
Sharing of training materials	3	1	4	2	5	15
Establishment of a travel grant "fund"	1	1	5	2	6	15
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						
need more training and knowledge sharing						

Q6: Please rank the following capacity development needs in terms of achieving increased access to physical infrastructure for your country (from 5 highest priority to 1 lowest priority).



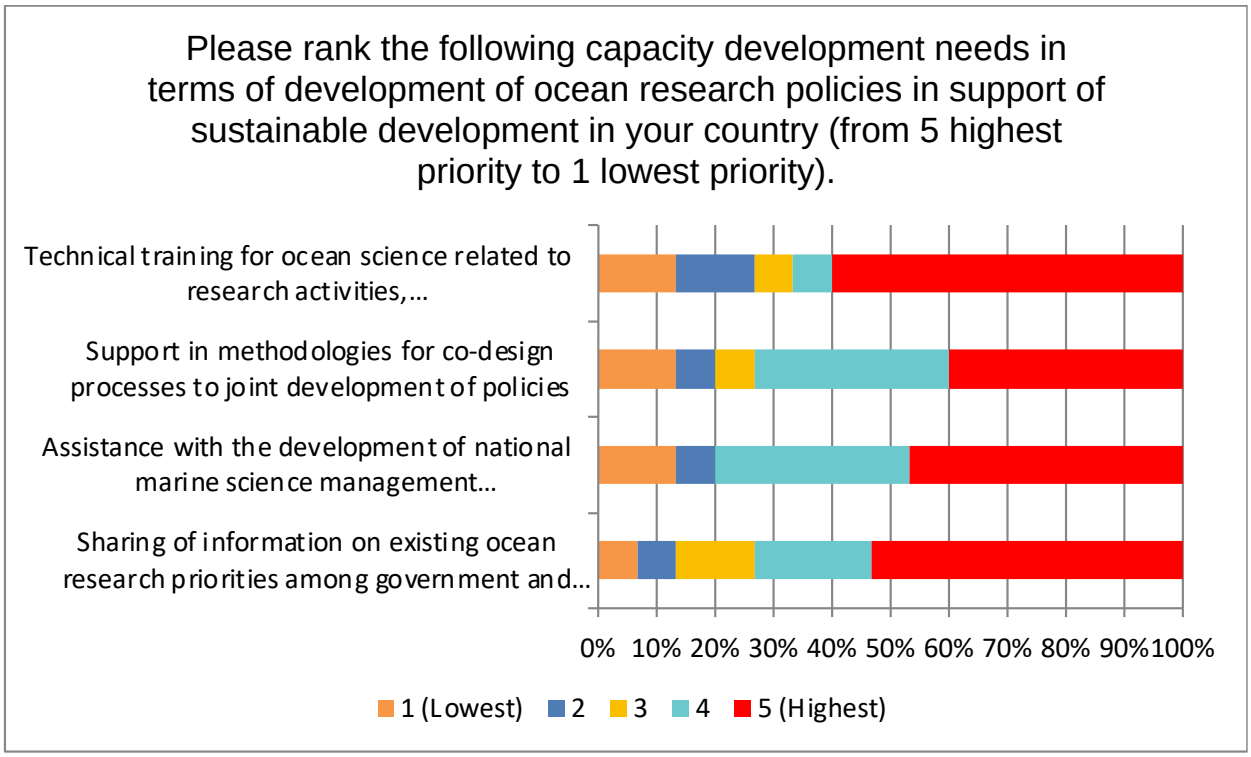
	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
Establishment and maintenance of a register of regional scientific research	3	0	0	3	9	15
Sampling and analysis equipment (e.g. for water, geological, biological, che	0	2	4	3	6	15
Observation facilities and equipments (remote sensing equipment, buoys,	0	3	1	3	8	15
Equipment for in situ and laboratory observations, analysis and experimen	2	1	3	3	6	15
Computer and computer software, including models and modeling techniqu	2	2	2	3	6	15
Organizing shared access to regional scientific research infrastructure	1	3	0	6	5	15
Provision of new equipment by donors to your institution/organization	1	2	3	2	7	15
Provision of used equipment by donors or other institutions	1	3	4	2	5	15
Organizing low-cost access to spare parts for equipment	2	3	2	1	7	15
Training on the use and maintenance of physical infrastructure and equipn	2	2	1	5	5	15
Technical training for ocean science related to ocean observation	1	3	1	2	8	15
Technical training for ocean science data management	1	2	2	3	7	15
Access to best practices on the use and maintenance of physical infrastru	1	2	1	7	4	15
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						
need techinical						

Q7: Please rank the following capacity development needs in terms of strengthened coordination with global, regional or sub-regional IOC communities and local networks (from 5 highest priority to 1 lowest priority).



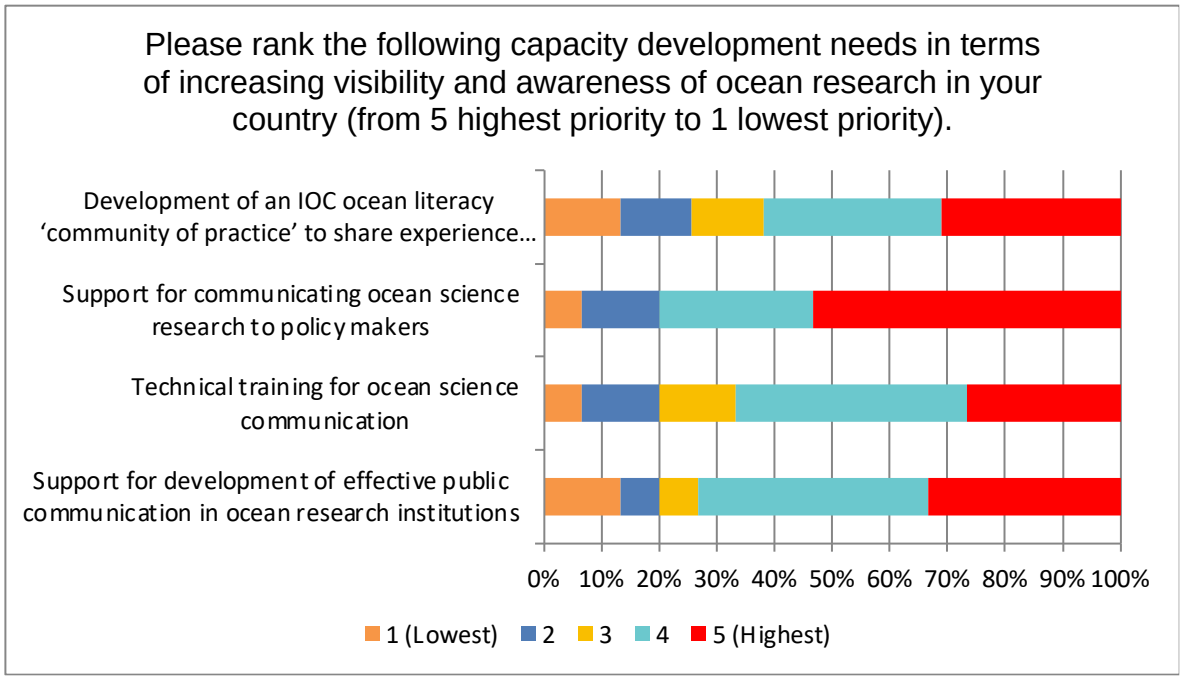
	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
Improved staffing of secretariat of regional sub-commissions	3	0	4	3	6	16
Reinforced budgeting of regional sub- commissions	2	1	2	4	7	16
Establishing an effective coordination and communication mechanism betv	1	2	2	4	7	16
Establishing an effective coordination and communication mechanism betv	1	1	3	4	7	16
Establishing an effective coordination and communication mechanism betv	1	3	2	4	6	16
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						
need more coordination and communication						

Q8: Please rank the following capacity development needs in terms of development of ocean research policies in support of sustainable development in your country (from 5 highest priority to 1 lowest priority).



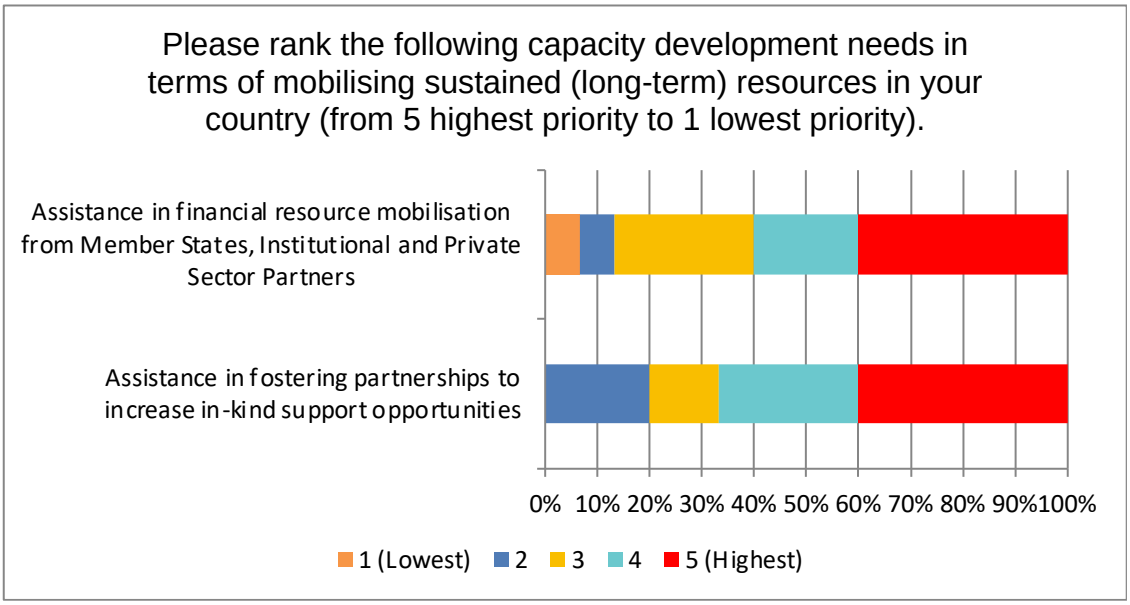
	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
Sharing of information on existing ocean research priorities among govern	1	1	2	3	8	15
Assistance with the development of national marine science management	2	1	0	5	7	15
Support in methodologies for co-design processes to joint development of	2	1	1	5	6	15
Technical training for ocean science related to research activities,	2	2	1	1	9	15
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						
Include ECOP programmes into policies of sustaibale development						
need more training						

Q9: I Please rank the following capacity development needs in terms of increasing visibility and awareness of ocean research in your country (from 5 highest priority to 1 lowest priority).



	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
Support for development of effective public communication in ocean resea	2	1	1	6	5	15
Technical training for ocean science communication	1	2	2	6	4	15
Support for communicating ocean science research to policy makers	1	2	0	4	8	15
Development of an IOC ocean literacy 'community of practice' to share ex	1	2	2	5	5	15
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						
need communication						

Q10: Please rank the following capacity development needs in terms of mobilising sustained (long-term) resources in your country (from 5 highest priority to 1 lowest priority).

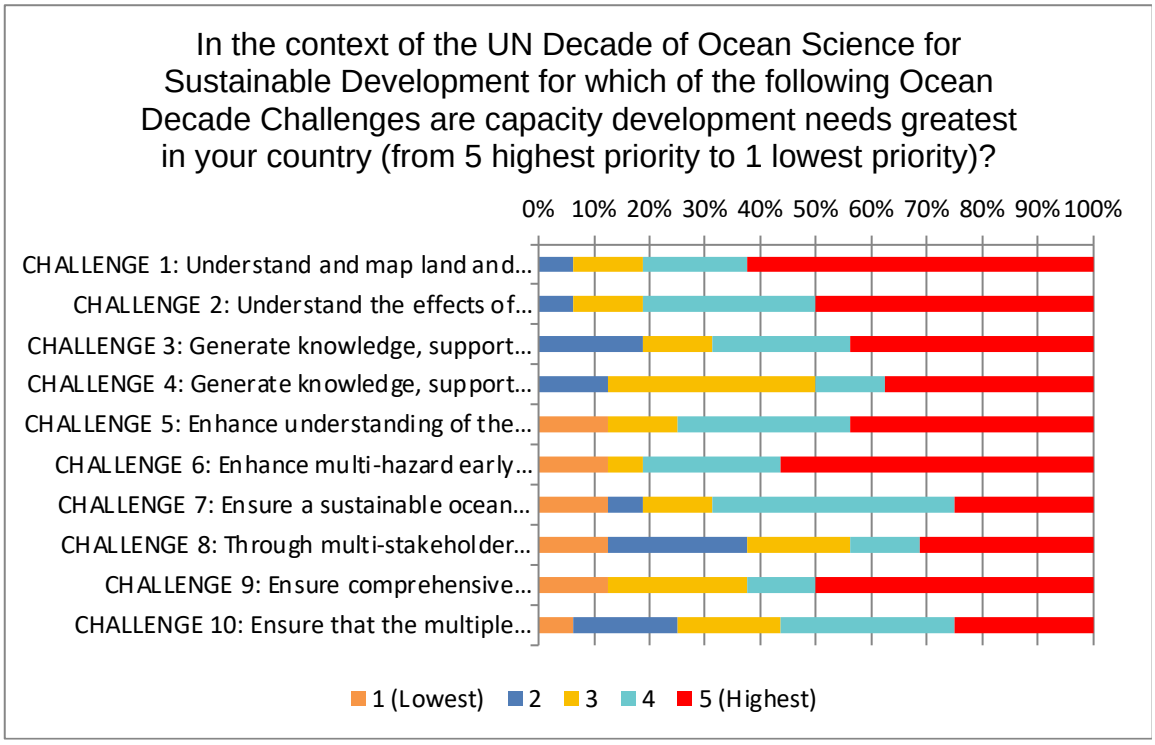


	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
Assistance in fostering partnerships to increase in-kind support opportunit	0	3	2	4	6	15
Assistance in financial resource mobilisation from Member States, Institutio	1	1	4	3	6	15
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						

Q11. What other specific support can IOC global and regional programmes (GOOS, IODE, MPR, Ocean Info Hub, Tsunami etc.) provide to contribute to addressing your country's CD requirements?

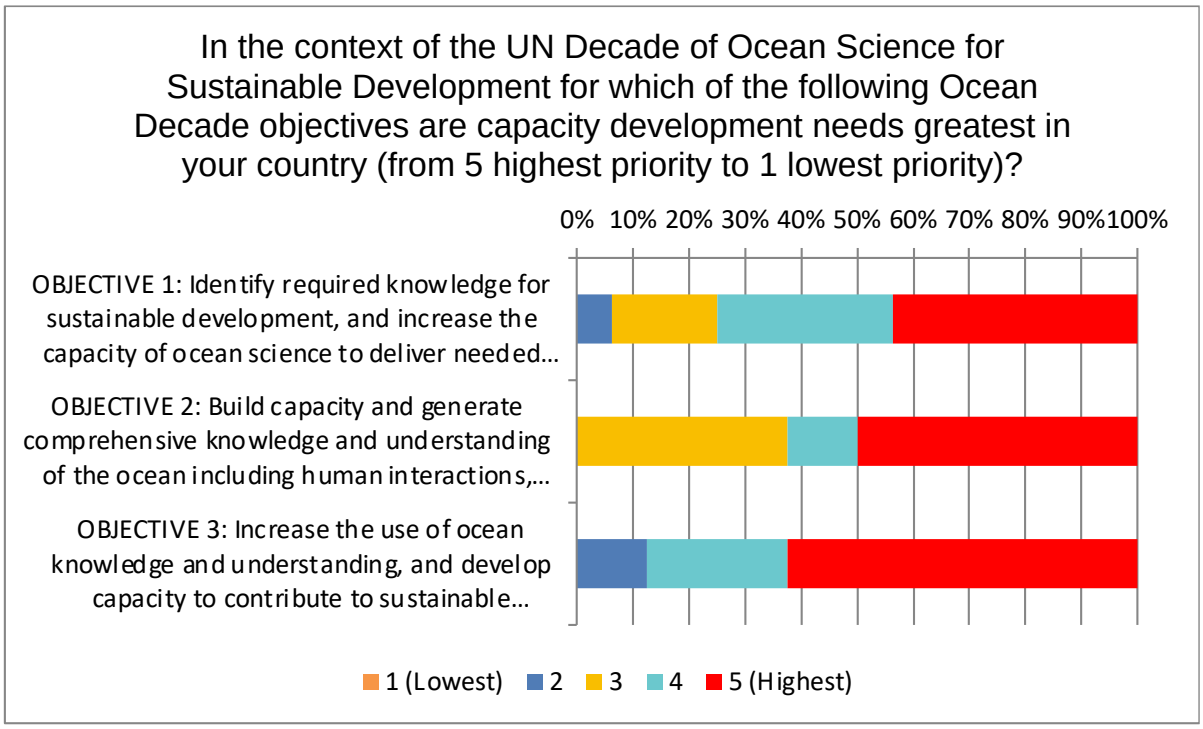
- Training
- Technical infrastructure
- Strengthened partnerships and collaboration in ocean observations, reporting and policy
- We need training short or long terms, equipments, information and a representative office
- Emerging new development in ocean science and research
- Different fields were already mentioned
- Need to get the new tide gauge stations, buoys and modeling software for Tsunami.
- The previous questions respond to the needs to achieve these objectives
- support regional programs addressing marine debris
- all need information for Tsunami and Ocean weather forecasting
- assistance in process of establishing the NODC
- The IOC programs have to give a great effort to the collaboration between countries to take quick action towards the common problems facing the countries, for example, plastic pollution, climate change, ocean acidification, etc...
- Providing consultants in particular fields of need, providing opportunities to be involved in International and Regional Expeditions, and providing information sources to hire crew, engineers, and specialists to work as cruise teams with the scientists in expeditions, there is a serious shortage of manpower in this area.

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?



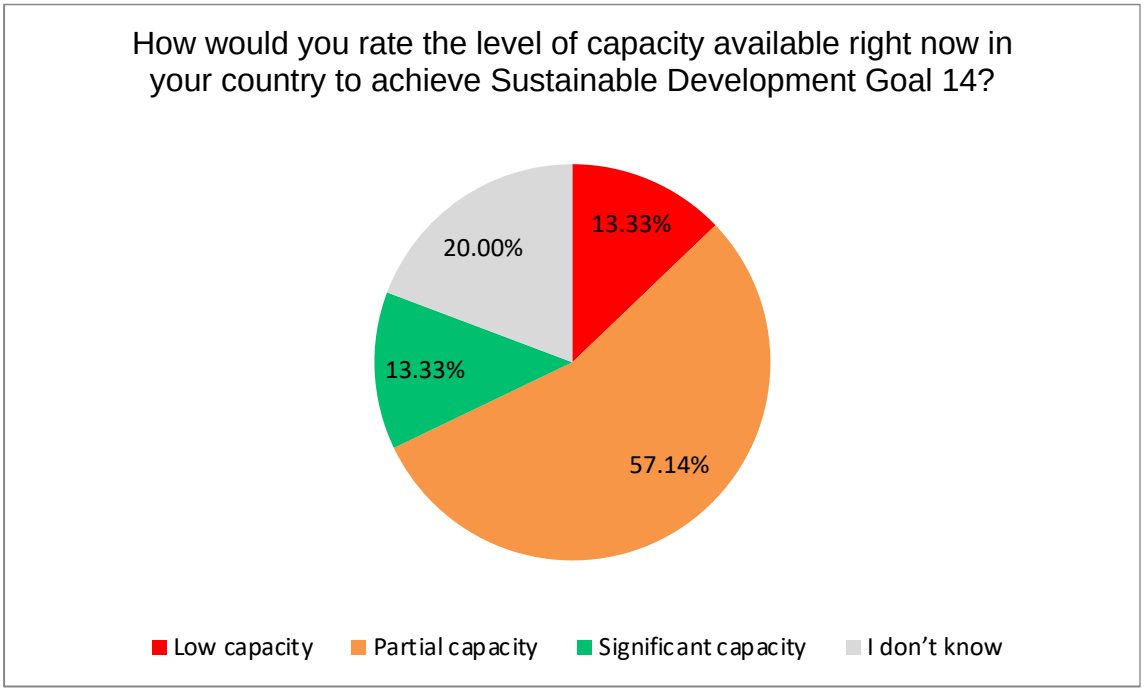
	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
CHALLENGE 1: Understand and map land and sea-based sources of poll	0	1	2	3	10	16
CHALLENGE 2: Understand the effects of multiple stressors on ocean ec	0	1	2	5	8	16
CHALLENGE 3: Generate knowledge, support innovation, and develop so	0	3	2	4	7	16
CHALLENGE 4: Generate knowledge, support innovation, and develop so	0	2	6	2	6	16
CHALLENGE 5: Enhance understanding of the ocean-climate nexus and g	2	0	2	5	7	16
CHALLENGE 6: Enhance multi-hazard early warning services for all geop	2	0	1	4	9	16
CHALLENGE 7: Ensure a sustainable ocean observing system across all	2	1	2	7	4	16
CHALLENGE 8: Through multi-stakeholder collaboration, develop a compr	2	4	3	2	5	16
CHALLENGE 9: Ensure comprehensive capacity development and equital	2	0	4	2	8	16
CHALLENGE 10: Ensure that the multiple values and services of the ocea	1	3	3	5	4	16
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						

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?



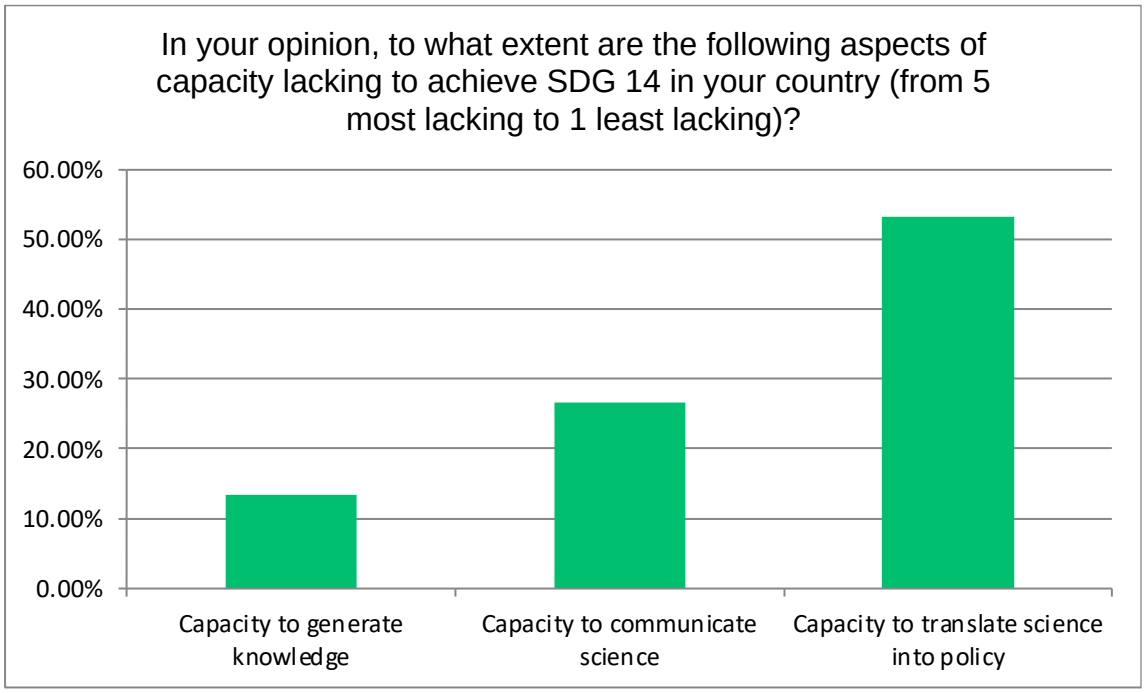
	1 (Lowest)	2	3	4	5 (Highest)	TOTAL
OBJECTIVE 1: Identify required knowledge for sustainable development, a	0	1	3	5	7	16
OBJECTIVE 2: Build capacity and generate comprehensive knowledge an	0	0	6	2	8	16
OBJECTIVE 3: Increase the use of ocean knowledge and understanding,	0	2	0	4	10	16
Please add other CD needs if the ones provided above do not correspond to the needs of your country.						

Q14: How would you rate the **level of capacity available right now in your country** to achieve SDG 14?



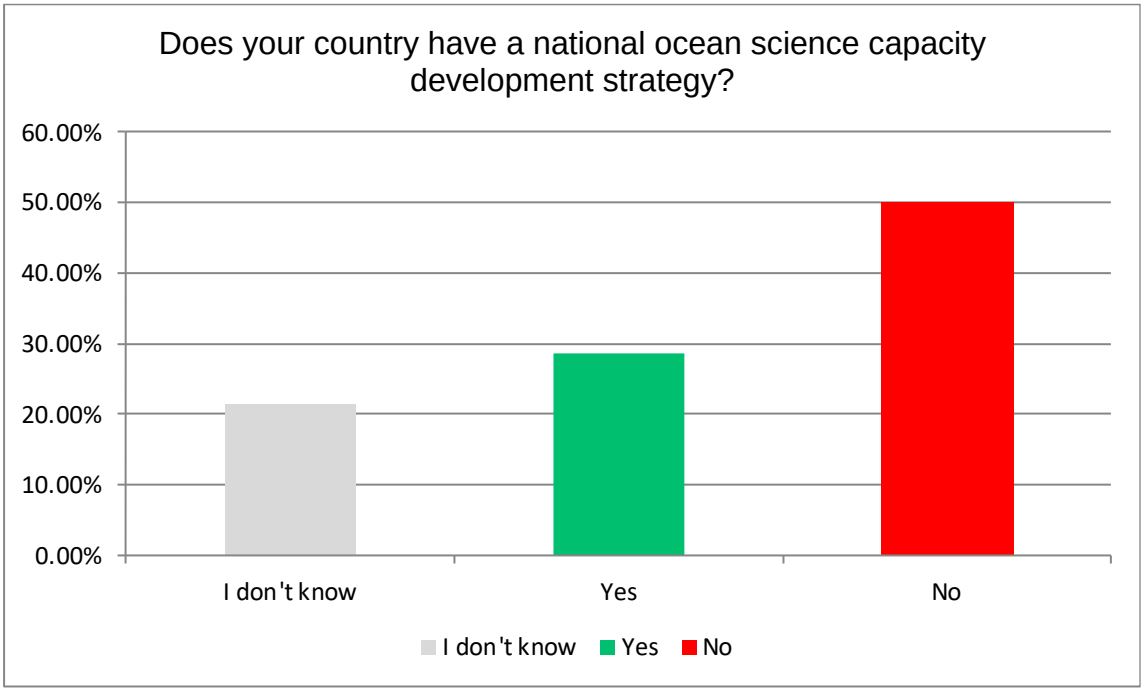
Answer Choices	Responses	
Low capacity	13.33%	2
Partial capacity	57.14%	8
Significant capacity	13.33%	2
I don't know	20.00%	3
Other (please specify)		15

Q15: In your opinion, to what extent are the following **aspects of capacity lacking to achieve SDG 14**?



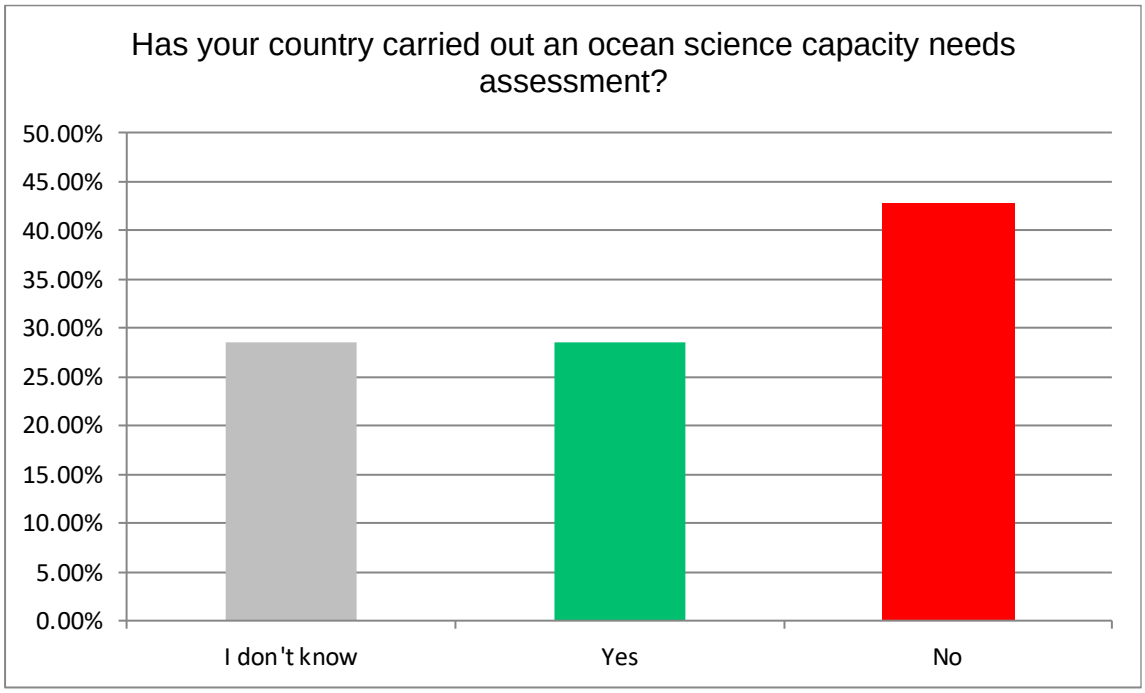
Answer Choices	Responses	
Capacity to generate knowledge	13.33%	2
Capacity to communicate science	26.67%	4
Capacity to translate science into policy	53.33%	8
Other (please specify)	6.67%	1

Q16: Does your country or institution have a **national ocean science capacity development strategy**?



Answer Choices	Responses	
I don't know	21.43%	3
Yes	28.57%	4
No	50.00%	7
If yes, please specify (provide URL)		1
https://niof-eg.com/#m-01-2023		

Q17: Has your country **carried out an ocean science capacity needs assessment**? Q2.22: If yes, please specify (provide URL if available online).



Answer Choices	Responses	
I don't know	28.57%	4
Yes	28.57%	4
No	42.86%	6
If yes, please specify (provide URL)		2
https://niof-eg.com		

Q18: Any other comment you'd like to add, please write here:

- So far ok.
- Need to get more technical cooperation works and also need to get t.he support for the development of ocean science capacity
- Nothing to add
- need all information and knowledge sharing
- Funding for ocean research is minimal in Kuwait; reaching critical mass in oceanography is a real manpower problem, field and cruise staff are lacking to conduct comprehensive surveys and marine operations, and funding for oceanography and marine studies is very low.

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