INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
COMMISSION OCÉANOGRAPHIQUE INTERGOUVERNEMENTALE
COMISIÓN OCEANOGRÁFICA INTERGUBERNAMENTAL
МЕЖПРАВИТЕЛЬСТВЕННАЯ ОКЕАНОГРАФИЧЕСКАЯ КОМИССИЯ
اللجنة الدولية الحكومية لعلوم المحيطات
政府间海洋学委员会

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IOC Circular Letter No 2919 IOC/VR/KI/HE/JD/PP
(Available in English, French, Russian, Spanish) 4 January 2023

To : National Official Coordinating Bodies for liaison with IOC

cc. : Permanent Delegates/Observer Missions to UNESCO of IOC Member States
National Commissions for UNESCO of IOC Member States
Chair and Vice-Chairs of IOC and Major Subsidiary Bodies

Subject: Invitation to contribute information for the compilation of the first edition of the *IOC Ocean Science Tracker* and inputs to the IOC Capacity Development Needs Assessment Survey

This circular letter addresses two decisions of the IOC governing bodies. First, through IOC Assembly Decision IOC-XXIX/5.1 (2017), IOC Member States recognized the need for systematic, continuous and long-term data compilation on their ocean science capacity in the editions of the *Global Ocean Science Report*. Second, through the IOC Assembly Decision IOC/A-31/3.5.3 (2021), IOC Member States confirmed the role of IOC Group of Experts on Capacity Development as a mechanism to regularly assess the capacity development requirements.

Through this letter, the Secretariat is presenting the tools designed to facilitate the online collection of the information mentioned above at the Member State level.

The ***Global Ocean Science Report Tracker* questionnaire** is designed to collect basic information on current ocean science capacity in a given country. The full analysis will be presented in the *Global Ocean Science Report Tracker* publication meant to provide key up-to-date numbers, e.g. human and technical capacity in addition to some preliminary assessments of the effects of COVID-19 on Ocean Science. The *Global Ocean Science Report Tracker* and its data portal is designed as a complementary product to the Global Ocean Science Report (GOSR), allowing interim monitoring of key parameters on the status of global ocean science. This questionnaire will also be the basis for the SDG 14.a.1 indicator reporting in 2023. The questionnaire was developed by the IOC Secretariat in close cooperation with the *Global Ocean Science Report* Editorial Board co-chairs.
Access the online questionnaire at:
https://qfreeaccountssjc1.az1.qualtrics.com/jfe/preview/previewId/f4202016-8ab3-4d39-955e-9a0eb29208a4/SV_6KeJgYsZBYMGBQq?Q_CHL=preview&Q_SurveyVersionID=current

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. Access the online survey at https://www.surveymonkey.com/r/JQLDQK8.

Both the questionnaire and the survey should be completed online, preferably in English. Member States are invited to fill the surveys using the information available from the best authoritative sources in their country, including ocean science institutions and national coordinators of ocean science programmes. Some questions allow to specify whether the data provided are estimates (please state the source which these estimates are based on) or if they only reflect a specific part of the national ocean science landscape (e.g. human capacity data for only one part of the national ocean science institutions).

The PDF versions of the questionnaire and the survey are attached hereafter for reference only.

For further information, queries and questions, please contact Ms Kirsten Isensee (k.isensee@unesco.org) for the *Global Ocean Science Report Tracker*; and Mr Peter Pissierssens (p.pissierssens@unesco.org) and Ms Johanna Diwa (jp.diwa@unesco.org) for the Capacity Development Needs Assessment Survey.

We would be grateful if you could complete the online questionnaires before 10 February 2023.

Yours sincerely,

[signed]

Vladimir Ryabinin
Executive Secretary

Enclosures (2): The *Global Ocean Science Report Tracker* Questionnaire (for reference only)
The IOC Capacity Development Needs Assessment 2022 Survey (for reference only)

The Global Ocean Science Report Tracker Questionnaire

unesco
Intergovernmental Oceanographic Commission

The Global Ocean Science[1] Report *Tracker* questionnaire is designed to collect basic information on current ocean science capacity in a given country, based on the more extensive Global Ocean Science Report questionnaire. This short questionnaire will be the basis for the SDG 14.a.1 indicator reporting in 2023. The full analysis will be presented in the Global Ocean Science Report Tracker publication providing key up to date numbers of ocean capacity, e.g. human and technical capacity in addition to some preliminary assessments of the effects of COVID-19 on Ocean Science. The GOSR 2020 presented at the 53rd Session of the IOC Executive Council, and the 31st session of the IOC Assembly (IOC/A-31/3.2) stressed the importance of this short assessment to track the impact of the COVID-19 pandemic on ocean science (Chapter 8).

In order to facilitate the contribution by IOC Member States the Secretariat developed some guiding principles:

- Please note that each IOC Member State is invited to designate one focal point to answer the questionnaire and for further follow up and clarifications by the IOC Secretariat (first part of the questionnaire).
- Member States are encouraged to use the best information available, obtained via consulting colleagues and the respective ocean science institutions. The final submission is expected to reflect a consolidated national authorized response.
- The IOC secretariat acknowledges, that providing information to each question of the questionnaire might be difficult, therefore please feel free to contact the IOC Secretariat if you have any questions.
- The answering fields further include comment sections, where there is the possibility to state whether the data provided are estimates (please state the source on which these estimates are based) or only reflect part of the ocean science landscape (e.g. human capacity data for only one part of the national ocean science institutions).

Please provide the information by 31 January 2022.

In case it is preferred not to use the online version of the questionnaire, please use this pdf file.

For further information and queries, and if preferred, the submission of the questionnaire as a word file, please contact Ms. Kirsten Isensee (k.isensee@unesco.org)

Thank you very much.

[1] GOSR 2020 Ocean Science definition: Ocean science includes all research disciplines related to the study of the ocean: physical, biological, chemical, geological, hydrographic, health and social sciences, as well as engineering, the humanities and multidisciplinary research on the relationship between humans and the ocean. Ocean science seeks to understand complex, multi-scale socio-ecological systems and services, which requires observations and multidisciplinary and collaborative research. See: https://en.unesco.org/gosr

I) RESPONDENT DETAILS – Please note that this information will be used to follow up with the respondent in case further questions regarding the information provided arise. Data and information provided are treated as a national authorized submission.

1. Country:

2. Full name of respondent (First name, family name):

3. Job Title:

4. Organization:

5. Postal contact details (Address):

6. Email:

7. Telephone number:

8. OceanExpert ID (www.oceanexpert.net):

II) OCEAN SCIENCE GOVERNMENTAL ORGANIZATION AND GENERAL INFORMATION

9. Does your country have a national ocean science strategy?

☐ Yes

☐ No

If you answered yes, please provide the URL and e-mail contact information

10. Does your country have a committee for the UN Decade of Ocean Science for Sustainable Development?

☐ Yes

☐ No

If you answered yes, please provide the name of the institution(s), the URL and e-mail contact information.

III) OCEAN SCIENCE SPENDING

The data requested in section III should relate to actual expenses for ocean science made by your country. If they are not available, please provide estimated data calculated using budget allocations for ocean science or other methodologies and explain as a note. Ocean science spending should be reported in your national currency (preferably) or US Dollar (using the conversion rate for the respective year).

11. Please specify the amount of money spent by governmental sources on ocean science per year, please copy and paste the table below for each ministry/governmental department.

Year	Name of ministry	Ocean Science Spending	Monetary unit (i.e. millions, thousands)	Currency	Conversion rate applied (if data are provided in US$)
2022					
2021					
2020					
2019					
2018					

Type of period considered

☐ Calendar year
☐ Fiscal year; starting month:

Comments

IV) NATIONAL RESEARCH CAPACITY AND INFRASTRUCTURE

Human Resources in Ocean Science

Researchers/Professionals are engaged in the conception or creation of new knowledge, as well as management of existing knowledge, information and data. They conduct and manage research, information, data and improve or develop concepts, theories, models, techniques, instrumentation, software or operational methods.	**Technicians and equivalent staff** are persons whose main tasks require technical knowledge and experience in one or more fields of engineering, the physical and life sciences (technicians) or the social sciences, humanities and the arts(equivalent staff). They participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods and the use of research equipment, normally under the supervision of researchers/professionals.	**Other supporting staff** includes skilled and unskilled craftsmen, and administrative, secretarial and clerical staff participating in R&D projects or directly associated with such projects.

12. Ocean science personnel by function – Headcounts (HC) or Full Time Equivalents (FTE). (T: Total, M: Male, F: Female, O: Other).

Year	Total ocean science personnel (A+B+C+D)				Function															
					Researchers (A)				Technicians and equivalent staff (B)				Other supporting staff (C)				Not specified (D)			
	Total	Male	Female	Other	T	M	F	O	T	M	F	O	T	M	F	O	T	M	F	O
2022																				
2021																				
2020																				
2019																				
2018																				

Please specify the unit in which employment was measured. For reasons of comparability, numbers in the form of HC are preferred.

☐ HC

☐ FTE

HC data cover the total number of persons who are mainly or partially employed in ocean science.
FTE data measure the volume of human resources in ocean science.

Comments

13. Please provide information about the age distribution and gender of researchers engaged in ocean science (T: Total, M: Male, F: Female, O: Other).

Year	Age class under 25 years (A)				Age class 25-34 years (B)				Age class 35-44 years (C)				Age class 45-54 years (D)				Age class 55-64 years (E)				Age class 65 years and more (F)			
	T	M	F	O	T	M	F	O	T	M	F	O	T	M	F	O	T	M	F	O	T	M	F	O
2022																								
2021																								
2020																								
2019																								
2018																								

Please specify the unit in which employment was measured. For reasons of comparability, numbers in the form of HC are preferred.

☐ HC

☐ FTE

HC data cover the total number of persons who are mainly or partially employed in ocean science.
FTE data measure the volume of human resources in ocean science.

Comments

Vessels

14. Please provide information about the number of research vessels, vessels partly used for ocean science (e.g. navy ships used for ocean science), and ships of opportunity (commercial vessels equipped with ocean observation equipment) are operated by your nation. Further, please specify their length (if information is available) and indicate the year when the information was assessed.

Vessel	Year	Number of vessels (A+B+C+D+E)	Length of the vessels				
			<10m (A)	Local coastal ≥10 m <35 m (B)	Regional ≥35 m <55 m (C)	International ≥55 m <65 m (D)	Global ≥65 m (E)
Research vessels							
Vessels partly used for ocean science							
Ships of opportunity							

Comments

15. For research vessels, please specify the days at sea, distinguishing between Territorial Waters, the Exclusive Economic Zone and High Seas (days per year for 2018, 2019, 2020, 2021 and 2022 or the last year with available data, based on the position of the ship at 12.00 pm local time).

Vessel	Year	Days at sea			
		Territorial waters (A)	Exclusive Economic Zone (B)	High Seas (C)	Total (A+B+C)
Research vessels	2022				
Vessels partly used for ocean science					
Ships of opportunity					
Research vessels	2021				
Vessels partly used for ocean science					
Ships of opportunity					
Research vessels	2020				
Vessels partly used for ocean science					
Ships of opportunity					
Research vessels	2019				

Vessels partly used for ocean science					
Ships of opportunity					
Research vessels	2018				
Vessels partly used for ocean science					
Ships of opportunity					

Comments

Ocean science technology

16. Do researchers in your country have access to the following new ocean science technologies (multiple choices possible):

Field Work Infrastructure

☐ Human Operated Vessel (Submersible)

☐ Surface Unmanned Vessel (SUV)

☐ Remotely Operated Vessel (ROV)

☐ Autonomous Underwater Vessel (AUV)

☐ Underwater Glider

☐ Wave Glider

☐ Marine Drone

☐ Mooring Buoy

☐ Underwater Cable System

Field Work Equipment (to be equipped on ship)

☐ Doppler Rader System

☐ Radiosonde Launcher

☐ Scientific Fish Finder.

☐ Single Channel Hydrophone Array (Streamer)

☐ Multichannel Hydrophone Array (Streamer)

☐ Multicable Multichannel Hydrophone Array

☐ Air Gun/ Water Gun

☐ Sub-bottom profiler

☐ Multi narrow beam bottom profiler

☐ Remotely operated Drilling equipment

☐ Remotely operated seafloor sampler

☐ Multinet plankton sampler

☐ Deep-Sea Camera System

☐ Stereoscopic Deep-sea Camera System

☐ Equipment for bathymetric studies

Laboratory Equipment on Board

- ☐ Auto Analyzer for chemical analyses
- ☐ X-ray tomography
- ☐ Mass Spectrometer
- ☐ FITC
- ☐ Radio Isotope laboratory
- ☐ DNA sequencer
- ☐ Deep Freezer
- ☐ Liquid Nitrogen Generator
- ☐ Others

Data and information management

- ☐ Supercomputer
- ☐ Data centre(s)
- ☐ Marine library

V) OCEANOGRAPHIC DATA AND INFORMATION MANAGEMENT

17. Does your country have one or more IODE National Oceanographic Data Centre, IODE Associate Data Unit or other ocean science relevant data centres?

☐ Yes

☐ No

☐ Other data centre

If you answered yes, please provide the URL and a contact email of each Data Centre/Unit

18. What observational data types are regularly stored and/or managed by your country? (Multiple answers possible.)

☐ Biological data (incl. taxonomic and physiological data, data about phyto- and zooplankton, benthos, pigments, fauna, flora, microorganisms, ...)

☐ Physical data (waves, currents, hydrography, sea level, temperature, salinity, optics, acoustics)

☐ Geological and geophysical (sediments, bathymetry,...)

☐ Chemical (nutrients, pH, CO_2, dissolved gases, ...)

☐ Pollutant (monitoring)

☐ Fisheries data

☐ Socio-economic (ocean related)

☐ Real-time data

☐ Other data types

If you ticked Other box, please provide details.

19. If you replied positively to question 17, please provide the data centre(s) name and URL where the collected data are stored and/or managed.

20. Does your country's data centre(s) apply a data (sharing) policy on the management and sharing of data/information?

☐ Yes, institutional

☐ Yes, national

☐ Yes, international

☐ No

If you answered yes, please provide the title, the URL and relevant e-mail contact information.

21. Does your country's data centre(s) apply the IOC Oceanographic Data Exchange Policy (2003, 2019)?

☐ Yes

☐ No

22. Does your country have one or more marine libraries and/or IODE Associated Information Units?

☐ Yes

☐ No

If you answered yes, please provide the URL and a contact email of each marine library and/or IODE Associated information unit.

23. Do(es) your country's data centre(s) restrict access to data/information?

☐ We do not restrict at all.

☐ We restrict access to certain data types.

☐ We restrict access to data collected in certain geographic areas.

☐ We restrict access during a certain period of time (embargo).

☐ Any other restrictions:

If you ticked Any other restrictions box, please provide details.

VI) SUSTAINABLE DEVELOPMENT

24. Does your country have a national strategy to achieve the goals of the Agenda 2030 in particular the Sustainable Development Goal 14 (https://sustainabledevelopment.un.org/sdg14) and related targets?

☐ Yes

☐ Yes, specific SDG 14

☐ No

If you answered yes, please provide the title and URL.

25. Does your country have reporting mechanisms for the individual SDG 14 targets and indicators in place?

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

☐	14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.	14.1.1 Index of coastal eutrophication and floating plastic debris density.
☐	14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.	14.2.1 Proportion of national exclusive economic zones managed using ecosystem-based approaches.
☐	14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels.	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations.
☐	14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.	14.4.1 Proportion of fish stocks within biologically sustainable levels.
☐	14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.	14.5.1 Coverage of protected areas in relation to marine areas.
☐	14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.	14.6.1 Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing.
☐	14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.	14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries.
☐	14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.	14.a.1 Proportion of total research budget allocated to research in the field of marine technology.
☐	14.b Provide access for small-scale artisanal fishers to marine resources and markets.	14.b.1 Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries.

□	14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of “The future we want”.	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources.

VII) COVID-19 IMPACT ON OCEAN RESEARCH CAPACITY

26. Which of the following areas were significantly affected by the COVID-19 pandemic in your country (multiple choices possible) and long-term impacts expected?

Negative long-term impact due to COVID-19 are expected on

The maintenance of infrastructure (vessels, equipment)	yes ☐ no ☐
The investment in new infrastructure (vessels, equipment)	yes ☐ no ☐
Capacity development and ocean science education activities	yes ☐ no ☐
Availability of sufficient human resources	yes ☐ no ☐
Provision of financial support	yes ☐ no ☐
Continuation of marine time series, observations, field expeditions	yes ☐ no ☐
Political support to ocean science	yes ☐ no ☐
Other (Please Specify):	yes ☐ no ☐

27. Please provide examples of documented COVID-19 impacts on ocean science capacity in your country here:

28. Please provide some examples of mechanisms which were developed and used in your country to cope with the documented COVID-19 impacts:

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IOC Capacity Development Needs Assessment 2022 Survey Questionnaire

Capacity Development (CD) is an essential tenet of IOC's mission. 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. The vision contained in the IOC Capacity Development Strategy identifies capacity development as the primary catalyst through which IOC will achieve its four high level objectives in the current 2022-2029 IOC Medium-Term Strategy.

While the GOSR Tracker aims to collect basic information on current ocean science capacity in a given country, this Capacity Development Needs Assessment Survey is organised by the IOC Group of Experts on Capacity Development to assess the capacity development requirements of all member countries in order to contribute to the implementation of the IOC CD Strategy

By completing this survey you will be contributing to assessing your country's capacity development needs in ocean science related issues. In addition, the information gathered by this survey will contribute to providing a holistic understanding of the capacity needs and requirements related to the UN Decade of Ocean Science for Sustainable Development, that could also be of benefit to other agencies and organizations.

The survey is composed of 2 sections:

Section 1: Respondent details
Section 2: Capacity development needs assessment

In case it is preferred not to use the online version of the questionnaire (https://www.surveymonkey.com/r/JQLDQK8), please use the word/pdf file below to facilitate consultations and compilation of a unified response per Member State. Kindly accomplish and return to us by 31 January 2023, COB CET.

For any additional questions or guidance please contact IOC CD Secretariat, Mr Peter Pissierssens (p.pissierssens@unesco.org) and Ms. Johanna Diwa (jp.diwa@unesco.org).

We thank you in advance for taking the time to complete this survey. Your feedback is important to us in how we can answer you/your country's needs in Capacity Development. This survey should take about 10-15 minutes to complete.

Section 1: Respondent Details

1. Please note that this information will be used to follow up with the respondent in case further questions regarding the information provided arise. Data and information provided are treated as a national authorized submission.

Country:
Full name of respondent (First name, Family name):
Job Title:
Institution/Organization:
Email Address
Tel. No:
Gender:
OceanExpert ID:

2. Does your country have a "national coordinating body" to coordinate its cooperation with IOC?

YES NO

If "NO" then why not: ….

3. Has your country designated a IOC national focal point for capacity development?

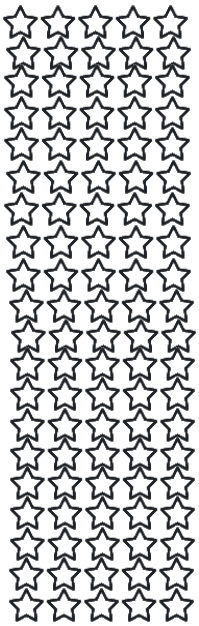
YES NO

If "NO" then why not: ……

Section 2: Capacity Development Needs Assessment: human, infrastructure, policies, visibility, resource mobilization

1. 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).

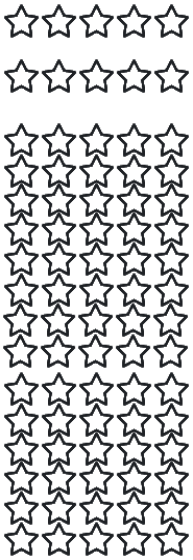
- Qualified ocean science professionals
- Research vessels and inshore boats
- Ocean observation equipment (buoys, AUVs, tide-gauges etc.)
- Ocean science sampling equipment and instrumentation
- Laboratory equipment and facilities
- Access to remotely sensed satellite data
- Access to regional and/or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



Please add other CD needs if the ones provided above do not correspond to the needs of your country.

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

- Higher education degree (BSc-PhD) programmes in ocean science within your country
- Advanced professional development training courses (specific short courses, technical training etc.)
- Continuous professional development throughout your career
- Management training for senior researchers and heads of institution
- Establishment of consortia of higher education in your country or region
- Increased collaboration with UNESCO Chairs and IOC
- Establishment of an internship/fellowship programme
- Access to on-board, research vessel-based training
- Establishment of a visiting lecturer programme
- Establishment of regional training (research) centres relevant to the IOC mandate
- Establishment of a mentoring programme
- Development of IOC alumni networks
- Establishment of “young scientist” awards
- Promoting gender equality and participation of women in ocean science research
- Sharing of training materials
- Establishment of a travel grant “fund”



Please add other CD needs if the ones provided above do not correspond to the needs of your country.

3. 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).

- Establishment and maintenance of a register of regional scientific research infrastructure (facilities, instruments, vessels) to facilitate access
- Sampling and analysis equipment (e.g. for water, geological, biological, chemical samples)
- Observation facilities and equipments (remote sensing equipment, buoys, tide gauges, shipboard and other means of ocean observation)
- Equipment for in situ and laboratory observations, analysis and experimentation
- Computer and computer software, including models and modeling techniques
- Organizing shared access to regional scientific research infrastructure
- Provision of new equipment by donors to your institution/organization
- Provision of used equipment by donors or other institutions
- Organizing low-cost access to spare parts for equipment
- Training on the use and maintenance of physical infrastructure and equipment
- Technical training for ocean science related to ocean observation
- Technical training for ocean science data management
- Access to best practices on the use and maintenance of physical infrastructure and equipment

Please add other CD needs if the ones provided above do not correspond to the needs of your country.

4. 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).

- Improved staffing of secretariat of regional sub-commissions
- Reinforced budgeting of regional sub- commissions
- Establishing an effective coordination and communication mechanism between the regional sub- commissions
- Establishing an effective coordination and communication mechanism between the regional sub- commissions and the global programmes
- Establishing an effective coordination and communication mechanism between countries not covered by IOC regional subsidiary bodies and the global programmes

Please add other CD needs if the ones provided above do not correspond to the needs of your country.

5. 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).

- Sharing of information on existing ocean research priorities among government and other organizations

- Assistance with the development of national marine science management procedures and national policies
- Support in *methodologies for co-design processes* to joint development of policies
- Technical training for ocean science related to research activities, e.g. climate change, ocean acidification, eutrophication

Please add other CD needs if the ones provided above do not correspond to the needs of your country.

6. 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).

- Support for development of effective public communication in ocean research institutions
- Technical training for ocean science communication
- Support for communicating ocean science research to policy makers
- Development of an IOC ocean literacy 'community of practice' to share experience within and across regions

Please add other CD needs if the ones provided above do not correspond to the needs of your country.

7: 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).

- Assistance in fostering partnerships to increase in-kind support opportunities
- Assistance in financial resource mobilisation from Member States, Institutional and Private Sector Partners

Please add other CD needs if the ones provided above do not correspond to the needs of your country.

8. 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?

Textbox:

9. 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 (from 5 highest priority to 1 lowest priority)?

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 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.

CHALLENGE 3: Generate knowledge, support innovation, and develop solutions to optimise the role of the ocean in sustainably feeding the world's population under changing environmental, social and climate conditions.

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. ☆☆☆☆☆

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. ☆☆☆☆☆

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. ☆☆☆☆☆

CHALLENGE 7: Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely, and actionable data and information to all users. ☆☆☆☆☆

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. ☆☆☆☆☆

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. ☆☆☆☆☆

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. ☆☆☆☆☆

10. 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 (from 5 highest priority to 1 lowest priority)?

OBJECTIVE 1: Identify required knowledge for sustainable development, and increase the capacity of ocean science to deliver needed ocean data and information ☆☆☆☆☆

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. ☆☆☆☆☆

OBJECTIVE 3: Increase the use of ocean knowledge and understanding, and develop capacity to contribute to sustainable development solutions. ☆☆☆☆☆

11. How would you rate the level of capacity available right now in your **country** to achieve Sustainable Development Goal 14?

I don't know **Low capacity** **Partial capacity** **Significant capacity**

12. In your opinion, to what extent are the following aspects of capacity lacking to achieve SDG 14 in your country (from 5 most lacking to 1 least lacking)?

Capacity to generate knowledge ☆☆☆☆☆

Capacity to communicate science ☆☆☆☆☆

Capacity to translate science into policy ☆☆☆☆☆

13. Does your country have a national ocean science capacity development strategy?

I don’t know
No
Yes

If yes, please specify (provide URL)

14. Has your country carried out an ocean science capacity needs assessment?
I don’t know
No
Yes

If yes, please specify (provide URL)

15. Any comment you’d like to add, please write here:

Textbox:

Thank you for your kind participation.