



IOCINDIO-VIII/3s
Paris, 19 May 2021
English only

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

**EIGHTH SESSION OF THE IOC REGIONAL COMMITTEE FOR THE CENTRAL
INDIAN OCEAN (IOCINDIO-VIII)**

hosted by the Iranian National Institute of Oceanography and Atmospheric Sciences
Online, 17–19 May 2021

EXECUTIVE SUMMARY REPORT

In accordance with Rule of Procedure 48.3, IOCINDIO, as a primary Subsidiary Body of IOC, is required to report to a Governing Body on its sessions.

The IOC Assembly at its Thirty First Session (UNESCO, Paris, 14-25 June 2021) will be invited to consider this Executive Summary including the Recommendations herein.

- 1 The Eight Intergovernmental Session of the IOC Regional Committee for the Central Indian Ocean (IOCINDIO-VIII) was hosted upon the kind and generous invitation of the Islamic Republic of Iran from the 17th to the 19th May 2021, online. The following IOC Member States participated: Australia, Bangladesh, Comoros, Egypt, France, Ghana, India, Iran, Iraq, Kenya, Kuwait, Madagascar, Maldives, Mexico, Morocco, Nigeria, Oman, Pakistan, Qatar, Sri Lanka, South Africa, Thailand, United Arab Emirates, United States of America and Yemen.
- 2 The session expressed a warm gratitude to the Islamic Republic of Iran, which hosted the online Session.
- 3 At the opening session, Monday, 17 May 2021, the Director of the Iranian Institute of Ocean and Atmospheric Sciences (INIOAS, Teheran-Iran), Dr. Abtahi Behrooz welcomed participants and expressed the full support of his country, the Islamic Republic of Iran to the IOCINDIO in general and for the successful outcomes of the IOCINDIO-VIII Session. He regretted that due to the COVID.19 pandemic sanitary restrictions, he could not host the meeting in presentia in Iran. He extended an invitation to participants for the next Session in presentia in a coastal city of the Islamic Republic of Iran. He further invited the Honourable, Mr. Mohammad Rastad, Deputy Minister of Roads and Urban Development and Managing Director of Ports and Maritime Organization to give a welcome and opening address to the session. The Deputy Minister expressed a warm welcome to participants and reiterated the full support of the Islamic Republic of Iran to the transformation of IOCINDIO into a Sub Commission. He also informed the meeting on numerous important programmes of the Islamic Republic of Iran on blue economy and sustainable development. He stressed the needs for reinforcing regional cooperation in the Indian Ocean.
- 4 Following the welcome address of the Deputy Minister, the Chairman of the Committee, Dr. Atmanand welcomed participants. He thanked the host country, the Islamic Republic of Iran for hosting this important session, exemplifying continuous commitments to the IOCINDIO reactivation process towards its transformation into an IOC Sub commission. He further thanked participants for making efforts to attend the IOCINDIO-VIII session at the trying period of COVID.19 pandemic restrictions. He extended his sympathy and solidarity to participants, the Indian Ocean and the world populations. He formally opened the meeting. He called on the Acting Secretary of IOCINDIO to present the administrative arrangements for the meeting.
- 5 The Acting Secretary, Mr. Justin Ahanhanzo welcomed participants and expressed the solidarity and sympathy of the IOC Secretariat to the region, one of the most affected regions by the COVID.19 pandemic. He explained the administrative arrangements including the presentation of the agenda of the meeting, the designation of the Rapporteurs and conduct of the session. There was no comment and as such, the Agenda was adopted as presented. He also presented the organisational arrangements related to online meeting with regards to Member States representation.
- 6 The United Arab Emirates (UAE) proposed Pakistan as the Rapporteur for the Session. The Islamic Republic of Iran seconded the proposal of UAE supporting Pakistan as the Rapporteur. Pakistan accepted and acted as the Rapporteur for the session.
- 7 The Chairman of IOCINDIO, Dr. Atmanand presented the IOCINDIO activities report since the Seventh session, (IOCINDIO-VII, Hyderabad-India, 31 May - 1 June 2019). The salient elements of his presentation related to the implementation of the adopted IOCINDIO work plan as follows:

- Leadership workshop of the IOC Regional Committee for the Central Indian Ocean (IOCINDIO) for developing the “Regional Framework for Coastal Vulnerability towards the Safety, Security and Sustainable Development of Member States in the Indian Ocean”, at the National Institute of Ocean Technology (NIOT) in Chennai, located in the Tamil Nadu State in the southern India 6-7 January 2020. The workshop reviewed the status of coastal vulnerability programmes in the region and refined the existing Framework. A number of IOCINDIO countries developed their national vulnerability maps with indices, notably India, Kuwait, Australia which published their reports. Bangladesh, Saudi Arabia, United Arab Emirates, Pakistan, Qatar and other countries are making good progress.
- **The Regional Planning Workshop of the UN Decade of Ocean Science for Sustainable Development (2021–2030) for the Northern and Central Indian Ocean countries as well as ROPME Sea Area** with the support of the Ministry of Earth Sciences of the Government of India and the Secretariat of the Intergovernmental Oceanographic Commission of UNESCO from the 8th to the 10th January, 2020 at the same venue as above (NIOT, Chennai, India). The Workshop identified the region-specific priorities, requirement and contribution to the objectives of the UN Decade of Ocean Science for Sustainable Development and developed a Regional UN Decade plan for IOCINDIO. The results of the workshop includes all the six outputs of the UN Decade: (i) Clean Oceans, (ii) Healthy and Resilient Ocean, (iii) Predicted Ocean, (iv) Safe Oceans, (v) Sustainable harvested and Productive ocean and (vi) Transparent and Accessible Ocean.
- Major outputs of the Regional Planning workshop of the United Nations Decade of Ocean Science for Sustainable Development (2021–2030) for the Northern and Central Indian Ocean countries as well as ROPME Sea area include proposals for the following flagship activities: (i) Regional Framework for Coastal Vulnerability towards the Safety, Security and Sustainable Development of Member States in the Indian Ocean leading to the development of the Coastal Vulnerability guidelines and maps implemented in the region; (ii) monitoring and Management of Marine litter and research on micro plastics under development; (iii) Reinforcement of the Tsunami Early Warning in the Indian Ocean; (iv) inventory of knowledge gaps in existing programmes, studies and researches maximizing their wide and equitable usage towards the Ocean Decade success; (v) identification of partnerships with funding sources and institutions (public/private) in the region to support the UN Decade Action Plan in the Indian Ocean Region; (vi) established Indian Ocean Youth Leadership Network of Ocean, Climate and Atmospheric Sciences; (vii) established Indian Ocean Leadership Mentoring Network; (viii) established Follow-up Coordinating Experts Group composed of Chairs and Rapporteurs of the Working Group; (ix) reinforced IOCINDIO-IOCAFRICA cooperation with Joint IOCINDIO/IOCAFRICA Experts Team with the view to develop joint cooperative programme on coastal vulnerability capacity building with the potential support of Kuwait, Bangladesh, Saudi Arabia and India in partnership with related African initiatives; (x) IOCINDIO participation in the Regional Ocean Decade planning workshop for Africa and Adjacent Islands, Nairobi, 27–29 January 2020 (implemented with the participation of an IOCINDIO Vice-President and Technical Secretary); (xi) progress review follow-up of the recommendations at the IIOE-2/2020 in GOA-India, 16–26 March 2020 (online).

- The 'Indian Ocean Blue Economy Summit' – a live webinar on Blue Economy in the Indian Ocean region towards United Nations Decade of Ocean Science for Sustainability (2021-2030) was held on May 6, 2021. This event was jointly organized by the IOC Regional Committee for the Central Indian Ocean (IOCINDIO), IEEE Oceanic Engineering Society, Marine Technology Society (MTS), Ocean Society of India (OSI), Kuwait Institute for Scientific Research (KISR), Kuwait, Ministry of Foreign Affairs, Bangladesh, South Asia Cooperative Environment Programme (SACEP), Department of Oceanography, University of Chittagong, Bangladesh, Indian Institute of Technology, Madras, India, Basrah Marine Science Centre, Iraq, Iranian National Institute for Oceanography and Atmospheric Science, Iran, Ministry of Municipality and Environment, State of Qatar, National Institute of Oceanography, Pakistan, University of Portsmouth, UK and King Abdullah University of Science and Technology, Saudi Arabia.
- The final outcomes and recommendations from this webinar based on discussions are: (i) cooperation and collaboration is the key to success, (ii) mariculture is the best option to meet fisheries demand, (iii) special focus is required on natural hazards in the Indian Ocean region, (iv) studies on pollution, micro-pollution, ship-related pollution need to be emphasized by researchers from IOC, (v) it is envisaged that the next generation should see more productive ocean health. It is also recommended to tap Blue Economy keeping in view to increase the economy of people. More attention is required on climate change aspects. Also, the Indian Ocean is warming at a higher rate. Its relation to natural hazards like tropical cyclones, frequency, and duration etc. needs a thorough understanding in relation to ocean warming. Another aspect, sea level rise implications on climate change. Impacts on the fisheries sector for sustainable development need to be focused. In line with the International Indian Ocean Expedition (IIOE-2) aspects of climate change affecting the Indian Ocean region is required with collaborative efforts of IOC, SCOR, IGOOS. It is important to transfer research to applications for sustainable development and governance for societal benefit.
- During the extended period of COVID-19 pandemic, following the above successful activities and despite the exceptional sanitary impacts on the region and its populations; the IOCINDIO Officers met regularly through teleconferences and developed the proposal for changing the status of IOCINDIO containing the mission, the objectives, terms of reference, budgetary implications, secretarial arrangements and other necessary provisions for the consideration of the IOC Executive Council in 2020. The proposal was submitted to the Executive Secretary of the IOC in April 2020, based on Decision IOC-XXX/3.3.4 of the 30th session of the Assembly. The second half of 2020 was mainly devoted to the joint review of the proposal by the IOC Secretariat, the IOC Chair and Vice Chair for Group IV, and the IOCINDIO Officers. Taking into consideration the fact that the Executive Council was postponed to February 2021, the IOCINDIO Officers and the IOC Secretary took advantage of the extended period to organize a Consultation meeting on the 16 February 2021 (online meeting) involving the IOC Member States and interested partners to review the proposal.
- Successful organization of IOCINDIO innovative Blue Economy Summit in the Indian Ocean Towards the United Nations Decade of Ocean Science for Sustainable Development (2021–2030), which attracted participants from all IOC regions beyond the Indian Ocean region, 6 May 2021, online meeting.

- 8 After the report of the IOCINDIO Chairman, the IOCINDIO Member States and partners including the IIOE-2, US-NOAA, the UNESCO Category 2 Centres and UNESCO Chairs presented their country activities report. The following Member States made oral presentations: Bangladesh, France, India, IR Iran, Kuwait, Oman, Pakistan, Qatar, Thailand, the United Arab Emirates (UAE). The other countries indicated that they would provide their reports in writing to interested partners as appropriate.
- 9 The UNESCO Category 2 Centres including the Regional Education and Research Centre on Oceanography for West Asia as a Category 2 Centre under the auspices of UNESCO (RCOWA) at the Iranian Institute of Ocean and Atmospheric Sciences (INIOAS) in Teheran, Islamic Republic of Iran and the International Training Centre for Operational Oceanography under the auspices of UNESCO (Category 2) based at the Indian National Centre for Ocean Information Services (INCOIS) of the Ministry of Earth Science of the Government of India and the UNESCO Chair in marine sciences at the Qatar University presented the reports of their respective activities and contribution to the IOCINDIO.
- 10 Dr. Nick D'Adamo presented the progress in the implementation of the IIOE-II and stressed the enhanced cooperation with IOCINDIO.
- 11 Non-IOCINDIO countries and partners also presented brief reports of their activities and interests in the Indian Ocean. Dr. Meredith Kurz, on behalf of NOAA presented an overview on the RAMA moorings, the IndoGOOS and the successful cooperation in the context of the IIOE-II. The Vice-Chair of Group V, Dr. Karim Hilmi (Morocco) commended the progress achieved by IOCINDIO and reiterated the support of the African countries to IOCINDIO.
- 12 The Executive Secretary of the IOC, Dr. Vladimir Ryabinin presented an overview of recent developments within UNESCO and the IOC and the United Nations Decade of Ocean Science for Sustainable Development (2021–2030) as well as the IOC Draft Medium-Term Strategy for 2022–2029.
- 13 **The main item for discussions and recommendation of the session was the review of the draft proposal for a new governance for IOCINDIO: a proposal for changing the status of the Committee into an IOC Sub-commission for the Indian Ocean (IOCIO).** The Chairman Dr. Atmanand presented the draft proposal with an overview of discussions and positions from the Consultations meeting on IOCINDIO status (16 February 2021). The Session very thoroughly and lengthily discussed this major item.
- 14 After clarifications of the Chair on a number of issues including the arrangements for the geographical extension of the proposed Subcommission, the Session unanimously recommended that the status of the Committee should be changed into an IOC Subcommission.
- 15 The Representative of India presented to the Committee the offer of his country to host the interim Regional Secretariat of the new Subcommission at the Indian National Centre for Ocean Information Services (INCOIS of the Ministry of Earth Sciences of the Government of India). The IOCINDIO-VIII Session warmly welcomed the generous offer of the Government of India and expressed its deep gratitude and appreciation. The Intergovernmental Session accepted this interim arrangement until the time when the IOC Secretariat will provide a dedicated Secretariat to the new Sub Commission as is the case for the existing IOC Regional Sub commissions, such as IOCAFRICA, IOCARIBE, and WESTPAC. To this end, all options should be explored for a suitable Secretariat of the IOCIO based on the current practices at the IOC with existing IOC Sub Commissions, either within a UN Regional office or at a UNESCO

Regional Office in the Indian Ocean region. Though the IOCINDIO Chair invited the IOCAFRICA and WESTPAC Chairs to attend the IOCINDIO-VIII Session, they were unable to attend. However, the IOC Vice-Chair for Group V, Dr. Karim Hilmi expressed the support of his country and Africa to IOCINDIO.

16 The Session reviewed and updated the IOCINDIO Workplan 2021–2023, including IOCINDIO-IEEE-OES partnership programme, engagement with the UN Decade of Ocean Science for Sustainable Development (2021–2030) and resources mobilization including the Ocean Decade regional enabling activities sponsored by the Government of Norway. The adopted workplan is in Annex 1.

17 **Member States and partners agreed** to work together to ensure the successful implementation of the IOCINDIO Work plan.

Election of Officers at the IOCINDIO-VIII

18 The Committee congratulated and commended the officers elected at the IOCINDIO-VII Session in Hyderabad, 31 May - 01 June 2019 for their sustained leadership and success accomplished in a very short period of time allowing the reactivation of IOCINDIO towards its transformation into an IOC Sub commission for the Indian Ocean.

19 The Committee further proceeded with the renewal of its bureau of officers. The following officers were elected with acclamation:

<p>Rear Admiral (Retd.) Md. Khurshed Alam BN Secretary, Head of the Maritime Affairs Unit, Ministry of Foreign Affairs, Dhaka; President, Council of the International Seabed Authority 2020-2021; Vice-Chair, Indian Ocean Rim Association (IORA). Maritime Affairs Unit, Ministry of Foreign Affairs, Dhaka Phone number : Tel-8802 9565684 (O) 8802 8812160, 8802 9889646 (R) 880 1714 035530 (Cell) Fax number : 8802 9557042 Email: khurshed.alam@mofa.gov.bd, cdrealam@gmail.com</p>	<p>Chairperson (Bangladesh)</p>
<p>Dr. Maryam Ghaemi Head of Bushehr Oceanography Center of Iranian National Institute for Oceanography and Atmospheric Science (INIOAS Branch in South of Iran) Iranian National Institute for Oceanography and Atmospheric Science-Bushehr Center, No. 3, Etemadzadeh St., Fatemi Ave., Tehran, 1411813389, Iran Phone number: +98 (77) 33563968 Fax number: +98 (77) 33563969 Email: mghaemi@inio.ac.ir Islamic Republic of Iran</p>	<p>Vice-chairperson (I R Iran)</p>
<p>Dr. Saif Mohammed AlGhais (United Arab Emirates)</p>	<p>Vice-chairperson (United Arab Emirates)</p>

Director General Environment Protection and Development Authority P.O Box # 11377 Government of Ras AlKhaimah United Arab Emirates Cell: +971-50- 6513513 USA +1 360 506 9190 Email: alghais@emirates.net.ae saifalghais@hotmail.com saifalghais@gmail.com	
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Place and dates of IOCINDIO-IX

- 20 The Representative of Iran, host of the session, Dr. Abtahi Behrooz reiterated his offer to host the next Session, IOCINDIO-IX, in presentia in a coastal city of Iran. He however indicated that he should further consult with his Government for further confirmation.
- 21 The Representative of Bangladesh, the newly elected Chair, Rear Admiral Khurshed Alam thanked Iran for offering to host the next session. He expressed his support to Iran. He however declared that Bangladesh would be happy to be an alternative venue (if possible).
- 22 The Committee decided that the Officers in consultation with the IOC Secretariat should follow up this matter to host the next Session at the lowest possible cost to the IOC regular budget. The host country is expected to support local logistics expenses. The IOCINDIO-IX Session should be organized prior to the 32nd Session of the IOC Assembly in 2023.

Adoption of the Summary Report

- 23 The Committee adopted the draft Summary Report (Document IOCINDIO-VIII/3s) with the related recommendations.

Closure of the Session

- 24 The Chairman of IOCINDIO declared the session closed at 10:30 on the 19th May 2021.

ANNEX 1

IOCINDIO WORK PLAN BASED ON THE IOC FUNCTIONS

- **IOC Function A: Ocean Science and Research**
 - Effects of human induced changes: Ocean acidification, eutrophication, hypoxia, harmful algal blooms (HABs) in coastal waters of the North-western Indian Ocean.
- **IOC Function B: Observing Systems & Data**
 - Ocean observations, coastal zone management, circulations and fisheries.
- **IOC Function C: Ocean Hazards**
 - Coastal vulnerability assessment for sea level rise and storm surges.
 - Monitoring with Responsible Response of Oil Spill in inner ROPME Sea.
- **IOC Function D: Assessments & information for Policy**
 - 2050 Integrated Ocean Policy Advice for Proactive Planning and Managements for IOCINCIO Member States.
- **IOC Function E: Governance**
 - Blue Economy Business opportunities in the context of climate change adaptation and Disaster Risk Reduction.
- **IOC Function F: Capacity Development**
 - “IOCINDIO Networking Research Infrastructures, Facilities and Human Resources” project proposal is a direct contribution to this function taking into account specificities in needs and capacities of Member States.
 - IOCINDIO-IEEE partnership programme.
- **Engagement with the UN Decade of Ocean Science for Sustainable Development (2021–2030)** and resources mobilization including the Ocean Decade regional enabling activities sponsored by the Government of Norway.

PROGRAMME OF WORK AND BUDGET FOR 2021-2023

1. The Committee used the contributions from Member States and partner Representatives as well as the invited experts and refined, completed and adopted the following set of project proposals as the Work plan for 2021-2023 giving a priority status to Coastal Vulnerability, Capacity Development in the IOCINDIO Region, Blue Economy, implementation of the UN Decade Actions. The Committee recommended that the IOC Secretariat should support the efforts of Member States and the officers in fund raising including IOC Member States Voluntary contributions.

The project proposals adopted include the following

Regional Coastal Vulnerability Framework towards Climate change Impacts, Adaptation and Resilience for IOCINDIO Coastal areas (RCVF CARI-Coast).

Geographical scope/benefitting countries: All IOCINDIO Member States

Tentative budget: \$US 90, 000

Brief justification and rationale of the project. The goal is to have all the countries in the region becoming ready for the anticipated sea level rise by developing their own coastal vulnerability index and early warning systems for storm surges. Countries in the region need to develop their codes and standards to make them ready for the consequences of storm surges and sea level rise. The IPCC predictions provide a strong background justification for the project:

- Scenario 1: If the whole world goes for renewable energy, the sea level will rise up to 25 cm by 2100.
- Scenario 2: If 50 % of the world power generated from renewable and the rest is from conventional power sources, then the sea level rise will be up to 50 cm by 2100.
- Scenario 3: Status quo, sea level rise will be up to 1 m by 2100.

For all the above scenarios, all the countries in the region should know the inundation and erosion threats and should be invited to take responsive remedial actions; for storm surges will increase the vulnerability to the those countries which are prone to cyclones.

The project activities includes the following.

- Identify the list of countries, which already have the coastal vulnerability index and those in needs.
- Identify the list of countries, which have developed or adopted early warning systems for storm surges and those in needs.
- North Indian Ocean area requires a specific focus because storm surges associated with severe tropical cyclones stand out as by far the most damaging among natural disasters. The South Asian countries bordering the Bay of Bengal and the Arabian Sea are frequently affected by cyclonic storms. About 9,000 km of coastal zones from Oman to

Thailand and about 300 million people are exposed to cyclone induced storm surges, (<http://unesdoc.unesco.org/images/0011/001133/113310Eo.pdf>). Storm surges due to cyclone in 1977 November that made landfall along Andhra Pradesh coast that killed around 10,000 lives. About 15,000 people lost their lives due to the storm surge generated by Odisha Super cyclone in October 1999 (Dube et al., 2009). Storm surge due to Bholra cyclone (November 1970) that made land fall along Bangladesh coast that took around 3,00,000 lives (Das PK, 1994). Although storm surges are less frequent in Arabian Sea than in the Bay of Bengal, major destructive surges occasionally have occurred along the countries bordering Arabian Sea. Cyclonic storm Gonu that struck Oman which causing about \$4 billion in damage and 49 deaths (Dube et al., 2009). The high and increasing population density along the coastal stretch necessitates a dedicated operational storm surge warning system in order to mitigate the loss due to storm surges. Considering the same, the Earth System Science Organization (ESSO) - Indian National Centre for Ocean Information Services (INCOIS), Government of India initiates the setting up the Storm Surge Early Warning System (SSEWS) for the Indian coasts. ESSO-INCOIS is mandate to storm surge warnings to disaster management offices and coastal authorities of the coastal regions of India. Timely issuance of surge bulletins from INCOIS during recent very severe cyclonic storms 'Hudhud' and 'Phailin', could helped coastal authorities in their successful evacuation processes and in turn lessen the human loss.

- A workshop to highlight the importance of studies, research and technology applications by each country for sustainable national coastal development
- Promote the development of scientific investigations and technology by interested countries.

IOCINDIO Networking Research Infrastructures, Facilities and Human Resources

Geographical scope/benefitting countries: All IOCINDIO Member States (Bangladesh, India, Sri Lanka, Kuwait and Iran indicated a strong interest at the meetings. It is expected that the IOCINDIO Officers will also approach countries non-represented at the meeting for their involvement as a collective effort).

Tentative budget for the project is US \$ 50,000

Period of implementation: Continuous

Brief justification and rationale of the project: This project is aimed at bringing IOCINDIO Member States into a dynamic mode of communications and cooperation in a very simple and concrete manner with available resources in each relevant national and regional institutions dealing with ocean, atmospheric and climate related sciences and technology. It is obvious that successful cooperation and joint project development require a good knowledge of own's facilities and those available in each Member States of IOCINDIO towards resources having and mutual assistance in the region. This project derived from the factual lessons learned at the two meetings when it appeared that there is no baseline documentation on research Infrastructures, facilities and human resources in several countries. This information is also lacking at regional

level while most of the countries in the region are countries with economies in transition with increased investments in scientific development with building of related infrastructures and training of high-level national experts over the last two decades.

Cost effective methodology: ICT with internet-based approach will be used to record national information, which will serve to develop the regional baseline.

The results of the project will provide a clear picture on existing facilities in the region and will foster pooling of resources to avoid duplication in effective cost sharing in project implementation and reinforcement regional institutional capacity and expertise. This baseline information will attract interests of partners willing to invest in the region.

Ocean observations, coastal zone management, circulations and fisheries

Geographical scope/benefitting: *All IOCINDIO Member States*

Tentative budget: US \$ 350,000

(Direct discussions will be initiated immediately with interested potential funding institutions identified including the Kuwait Foundation for Advancement of Sciences (KFAS); the Kuwait National Petroleum Company (KNPC) and the Regional Organization for the Protection of the Marine Environment (ROPME). India and Kuwait indicated a strong interest assistance for fund mobilization for the project.

Brief justification and rationale of the project: The main objective is to develop a regional framework for '**Research for management plans**'. The larger objectives of the project include (1) livelihood improvements, (2) ensuring food security and (3) maintenance of ecosystem health.

With an underline principle of ecosystem approach, the following three components are considered:

- (i) Restoration of coral reef ecosystem
- (ii) Modelling of nutrient cycle fluxes
- (iii) Monitoring of coastal zone in relation to marine activities

Capacity building as a crosscutting theme will focus on the following focal areas (i) Ocean Observation-data collection and management, (ii) Utilization of coastal structures for nourishing of beaches.

All the three components will be implemented over a time span of 18 months.

The overall agency responsible for the implementation of the project will be the Kuwait Institute of Scientific Research (KISR) with responsible designated scientist staff for each component as appropriate.

Monitoring with Responsible Response of Oil Spill in inner ROPME Sea Area ‘

Geographical scope/benefitting: Member States of ROPME

Tentative budget: US \$ 250,000

(ROPME and Kuwait indicated interest for active fund raising for the project: potential sources for funding include the Petroleum Corporation, Aramco, BP and Shell).

Brief justification and rationale of the project: This project will have the following 3 components with a timeline of 18 months:

1. Assessment of the problem
2. Causal analysis
3. Interventions

ROPME will coordinate the project and will take the necessary actions to convene in close collaboration with interested countries and potential funding partners' experts, a technical workshop which will develop the detailed proposal for immediate implementation.

Effects of human induced changes: Ocean acidification, eutrophication, hypoxia, harmful algal blooms (HABs) in coastal waters of the North western Indian Ocean

Geographical scope/benefitting countries: North-western Indian Ocean

- ***Tentative budget: \$US 350,000***
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Brief justification and rationale of the project: (i) Due to the semi-enclosed nature of the region, a disproportionately large part of the NWIO falls within the exclusive economic zones of the littoral countries. Oceanographic processes in the region are closely linked by seasonal reversing currents. The Persian Gulf, for example, a small (area ~250,000 km²), shallow

(average depth ~35 m) basin, is surrounded by eight countries. Therefore, these processes can only be studied in a cooperative mode. The IOC/UNESCO through the Regional Committee provides the added-value for facilitating international collaboration; (ii) The project will constitute an important component of the ongoing Second International Indian Ocean Expedition (IIOE-2) of which IOC/UNESCO is a co-sponsor. The project is particularly relevant to the following research themes of IIOE-2: Theme 1: Human impacts; Theme 4: Circulation, climate variability and change; and Theme 6: Unique geological, physical, biogeochemical and ecological features of the Indian Ocean.

Global significance of the project. The results of the project will be of global significance taking into consideration the fact that the marginal seas of the region make important contributions to the water mass composition and biogeochemistry of the mesopelagic oxygen minimum zone of the open ocean. Ocean acidification data type's collections in the region would provide a strong contribution to Ocean acidification research. The reactivation of ODINCINDIO would be instrumental to fill the gap. IODE will contribute to the reactivation.

ODINCINDIO expected contributions are the following:

- ODISCat: find out what MS have what data and information
- OceanExpert: who does what in the IOCINDIO region
- Focus on IOCINDIO MS that have data relevant to eg OA, OBIS
- Collaborate in CHM/TMT
- Identify regional focal point to coordinate the above actions in close collaboration with IODE Secretariat
- IOCINDIO collaboration with OBIS and the regional OBIS nodes (PEGO-OBIS, IndOBIS, SEA-OBIS, OBIS Malaysia, OBIS Australia) to share biodiversity data through the open-access OBIS platform. Countries that lack an OBIS node are invited to establish a national node or can work through one of existing regional nodes.
- IOCINDIO training courses in collaboration with OBIS and the UNESCO Category 2 Centres, regional training centres of the Ocean Teacher Global Academy to enhance the capacity in using OBIS data standards and data management best practices, as well as train scientists in using OBIS for data analysis and the creation of biodiversity information products to support science, assessments (including climate-change impacts) and area-based management.
- Develop IOCINDIO a regional marine biodiversity project in collaboration with OBIS to map the marine ecosystem habitats as a contribution to the development of a comprehensive digital atlas of the ocean floor as part of the UN Ocean Decade.

Links with 2030 Agenda: The objectives of the proposed project are directly relevant to the **United Nations' Sustainable Development Goals** including **SDG#13 (Climate Action)** and even more so, **SDG#14 (Life Below Water)** which makes a specific mention about **Ocean Acidification (Target # 3)**. Unfortunately, this part of the ocean lags far behind other oceanic areas in research on ocean acidification, largely because of lack of technical expertise and infrastructure. **Capacity Building (Target # 8) in the region, not only in ocean acidification,**

but in overall marine scientific research is expected to be one of the most important outcomes of the project. The project will also contribute to varying degrees for achieving the other seven targets under SDG 14 in the region.

2050 Integrated Ocean Policy Advice for Proactive Planning and Managements for IOCINDIO Member States

Geographical scope/benefitting countries: IOCINDIO Member States.

Kuwait, India, Pakistan and Bangladesh indicated a proactive leadership to assist in resources mobilization for this project

Budget: 120,000\$US

Brief justification and rationale of the project

This project is urgently needed because most coastal nations are not prepared for and are not taking an informed, integrated and proactive policy, planning and management decisions today, that will be required to respond to the serious negative trajectories that ocean science indicates will occur by 2050. Indeed, these changes are happening today and are predicted to accelerate.

The rapidly advancing changes in ocean ecosystem health and functioning, the distribution and abundance of marine living resources, the sustainability of critical coastal and marine habitats and biodiversity, and the fundamental physical, chemical and biological composition of marginal seas, will have profound near- and long-term impacts on coastal communities and infrastructure, societies and economies. This is particularly and acutely true in the IOCINDIO region.

The leading-edge ocean science and monitoring being conducted by respected intergovernmental organizations - including the IOC, regional oceanographic institutes, etc., and being interpreted by policy bodies such as the IPCC, OECD, UNEP, UNDP, FAO, etc.; clearly indicates that the global ocean is warming, rising, acidifying, deoxygenating and increasing in energy and unpredictability. Yet we continue to tie our thinking, behaviors, economies and societies to present transient conditions. Given the broad societal implications of the changes underway in ocean socio-economic-ecological systems worldwide, virtually all UN 2030 SDG goals and targets will be highly relevant, either as being challenged, or as solutions to the growing threats. These changes will have direct implications for addressing: existing poverty and hunger challenges that will be exacerbated by inaction and/or inappropriate policy measures by responsible Governments and stakeholders concerned (Goals 1 & 2). Good health and well-being (Goal 3) and gender equality (Goal 5) will be challenged without proactive and integrated planning, as will the availability of clean water and sanitation (Goal 6) and affordable and clean energy (Goal 7) in inundated coastal areas and by damaged infrastructure. Decent work and economic growth (Goal 8) may be difficult to realize and inequalities (Goal 10) may be increased.

Promise can, however, be found though in Goals 9 (Innovation and infrastructure), the development of sustainable cities and communities (Goal 11), through responsible consumption and production (Goal 12) and climate action (Goal 13), and in efforts to support life on land (Goal 15). Peace, justice and strong institutions (Goal 16), partnerships (Goal 17), and centrally, Goal 14 Life Below Water including oceans and its ambitious targets point us in the right direction.

Blue Economy Business opportunities in the context of climate change adaptation and Disaster Risk Reduction.

Geographical scope/benefitting countries: Interested IOCINDIO Member States (Bangladesh, India, Sri Lanka, Kuwait and Iran indicated a strong interest at the meetings. It is expected that the INCINDIO Officers will also approach countries non represented at the meeting and which may have interest to join such as Myanmar, Iraq, KSA, Bahrain, United Arab Emirates, Qatar, Oman, etc.).

Tentative budget for the project is US \$ 600,000 (US\$ Six Hundred Thousand)

Brief justification and rationale of the project: The project is composite in nature and suggests ways and means to collect, collate and evaluate information for creating sustainable business opportunities in the context of climate change adaptation and Disaster Risk Reduction. The aim of the project is to promote sustainable ocean/marine-based economies, through the development of Blue Economy activities that create wealth for coastal population and contribute to the conservation of marine and coastal ecosystems.

The Project components are related to several crosscutting areas – such as building a knowledge economy, learning process for sustainable management of ecosystems, preservation of biodiversity, life under water and livelihoods support.

The SDG 1, 3, 5, 8, 11, 13, and 14 are intricately interlinked with the processes deployed with the project. After detailed consultations on the prospects and problems associated with a rather rapidly changing oceanic paradigm, ICOINDIO-VI, has taken the three following objectives under the project, which would demonstrate a commercially attractive set of outputs and outcomes for creating community-based tractions in the Member States. The idea is to create and showcase the added-value for comparatively small projects, which the communities can partake and claim as their own – so that greater and transcendental components of climate change adaptations could be infused.

In order to mitigate the devastation due to storm surges, it is necessary that the problem of the storm surge be seriously addressed through the collective efforts and in an integrated way, by the Member States in the region in collaboration with relevant regional and international partners.

ANNEX 2

IOCINDIO-VIII RECOMMENDATIONS (17 – 19 MAY 2021)

The IOC Regional Committee for the Central Indian Ocean at its Eighth Intergovernmental Session (IOCINDIO-VIII), On-line, hosted by Islamic Republic of Iran, from the 17th to the 19th May 2021.

Expressing a warm gratitude to the Islamic Republic of Iran, which hosted the on-line Session, 17th – 19th May, 2021;

Recalling the *Decision IOC-XXX/3.3.4*, by which the IOC Assembly at its 30th session requested the IOCINDIO Chair to prepare, with the help of the IOC Secretariat, a proposal for changing the status of IOCINDIO that would contain the mission, the objectives, terms of references, budgetary implications, secretarial arrangements and other necessary provisions for the consideration of the IOC Executive Council in 2020,

Noting with regret that the proposed 53rd Executive Council anticipated in 2020 was postponed to February 2021 due to the global COVID.19 pandemic restrictions and that the tied agenda for that rescheduled Session did not allow the inclusion of the IOCINDIO item for discussions;

Recalling with appreciation the interests of IOCINDIO Member States supported by the IOC major Governing Bodies for the Indian Ocean;

Reaffirming the unique role and place of the Indian Ocean which served as the major founding undertaking of the IOC through the International Indian Ocean Expedition in the early 60's;

Recalling also the correspondence of IOC vice Chair, Group IV to the Executive Secretary of IOC, dated back 1999, with in-deep historical assessment and monitoring of the root causes analysis of the stagnation of IOCINDIO like the other IOC Subsidiary bodies over different periods of their life time, as for IOCARIBE, WESTPAC, IOCEA and IOCWIO; and expressing a strong call to the IOC Executive Secretary to take appropriate measures to reverse the situation at the time;

Recalling further the numerous IOC Major Bodies Decisions and Resolutions, notably; *Resolution XXV-2* at the 25th Session of the Assembly in June 2009, which expressed strong interest for re-activating IOCINDIO; the *Resolution EC-XLIX.1* of the Forty-ninth Session of the Executive Council (Paris, 7-10 June 2016) which requested among others, the IOC Executive Secretary to appoint a Secretariat Focal Point to be responsible for liaison between the Member States and the IOCINDIO officers;

Noting with appreciation that it is only owing to the partial time allocation of the IOC Secretariat staff that the reactivation of IOCINDIO became truly effective and irreversible, making IOCINDIO at a present, a vibrant regional body attracting more and more Member States from the region and outside for enhanced regional and international cooperation in the Indian Ocean;

Recalling with appreciation that Member States of IOCINDIO region are hosting unique programmes and Secretariats entirely funded by themselves and outside partners which directly contributes to the IOC and UNESCO global mandates and programmes, notably the two UNESCO Category 2 Centers in the field of IOC mandate; increasing numbers of UNESCO

Chairs; the Second International Indian Ocean Expedition IIOE-2 (2015–2025) with two regional Secretariats based in Perth, Australia and Hyderabad, India; the Decade of African Seas and Oceans (2015–2025), the three Tsunami Service providers in Australia, India, Indonesia, the Indian Ocean GOOS Secretariat in Hyderabad, India; and a significant number of IOC-UNESCO programmes and activities including Global Sea-level Observing System, Global Ocean Observing System with the Indian Ocean Observing System; International Oceanographic Data and Information Exchange, Integrated Coastal Area Management and the recently adopted IOC Capacity Development Strategy.

Expressing appreciation to Member States for their commitments and support since the inception of the IOCINDIO reactivation leading to their active participation in the IOCINDIO-VIII Session, 17th – 19th May 2021 online;

Recognizing with appreciation the efforts of the IOC Governing Bodies and the Secretariat which identified complementary Additional Programmes seed funds, though small, enabling the initial implementation of the above Resolutions, including the organisation of IOCINDIO-VI (Kuwait, 2017) and IOCINDIO-VII (India, 2019) Sessions with their subsequent activities;

Expressing deep gratitude and appreciation to the IOCINDIO Member States for their full support and commitments to the preparation of the United Nations Decade of Ocean Science for Sustainable Development through their mobilisation leading to the successful organisation of the related Regional Planning workshop generously hosted by the Government of India, (Chennai, 8-10 January, 2020);

Recognizing with appreciation the pivotal and essential ongoing role for autonomous national and regional capacity building of the two Category 2 Centres of UNESCO in the region, namely, the Regional Education and Research Centre on Oceanography for West Asia at the Iranian National Institute for Oceanography and Atmospheric Sciences in Teheran, Islamic Republic of Iran and; the International Training Centre for Operational Oceanography, (ITCOOcean) as a centre under the auspices of UNESCO (category 2); at the Indian National Centre for Ocean Information Services (INCOIS) in Hyderabad, India;

Noting the progress in the intersessional period, following up on the recommendations of the 30th IOC Assembly on the process for the transformation of IOCINDIO to a sub commission and further noting the informal consultation meeting organised by the IOC and the strong support of Member States at the consultative meeting as well as the IOCINDIO VIII session;

Recommend the transformation of the IOC Regional Committee for the Central Indian Ocean into the IOC Sub Commission for the Indian Ocean with the relevant prerogatives, Secretariat support, programme and operational budget as it is the case for the other IOC Regional Subsidiary Bodies such as IOCAFRICA, IOCARIBE and WESTPAC; in the spirit of the universal values of the United Nations for equity and equality among people, Member States and regions;

Expressed deep appreciation to the Government of India for its generous offer to provide in kind support for the establishment of a transitional regional Secretariat for the IOC Sub Commission for the Indian Ocean till the establishment of a dedicated Regional Secretariat for IOCINDIO as it is the case for the other Regional Subsidiary Bodies in the spirit of United Nations universal values of equity and equality among people, Member States and regions;

Recommend that the IOCINDIO Officers and the IOC Secretariat should explore appropriate mechanisms to facilitate cooperation with IOC regional bodies and other interested organizations and partners.

Further recommend a reinforcement of effectiveness of national coordinating bodies or focal points with terms of reference as a matter of high urgency. The Terms of Reference should include guidance on the composition of the co-ordinating bodies. The list of focal points should be made widely available using IOC networks and mailing lists including Ocean Experts and specific list of Group of Experts such as Tsunami Work Groups; GOOS Regional Alliances, Ocean Sciences and IODE, etc;

Request the IOC Executive Secretary to support the newly elected IOCINDIO Officers in their efforts for mobilising bilateral and multilateral partnerships for financial and in-kind extra budgetary resources, such as from Member States, Indian Ocean Rim Association, The World Bank, the Global Environment Facility, the European Union/European Commission, the United Nations Environmental Funds including the Adaptation Funds, the Green Climate Funds, etc.

Request finally the 31st Session of IOC Assembly to endorse the present Recommendations and to identify allocations of financial resources from the Regular Budget and extra budgetary of the IOC to support the full implementation of the IOCINDIO-VIII Recommendations aligned with the other existing Sub Commissions.