

Ocean Cultural Heritage and Ocean Literacy Programs in the UN Decade of Ocean Science for Sustainable Development(2021-2030)

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Abstract

The United Nations set up Sustainable Development Goals (SDGs) as the international agenda for the period of 2016 to 2030 in which the role and benefit of the ocean for human well-being and prosperity is appreciated. The goal of conservation and sustainable use of the ocean and its resources is stated as a separate article in SDG14. Recognizing the importance of interphase between marine science and policy and thus societal outcomes for achievement of the SDGs, especially of SDG14, the United Nations adopted the initiative of UN Decade of Ocean Science for Sustainable Development (2021-2030) and mandated Intergovernmental Oceanographic Commission (IOC) of UNESCO to formulate the implementation plan of the initiative. Ocean cultural heritage and ocean literacy programs find link to the Decade and become integral parts of the Decade's objectives, themes and priorities. At the first global planning meeting of the UN Decade (Copenhagen Denmark, May 13-15 2019) the ocean decade heritage network was proposed and at the Korea-ASEAN forum on ocean literacy and ocean heritage (Busan Korea, Nov. 22-23, 2019) an Asian Society on this subject was initiated.

Keywords Ocean literacy, Ocean decade heritage network, Asian society of ocean heritage and ocean literacy, UN Sustainable Development Goals, UN Decade of Ocean Science for Sustainable Development 2021-2030, UNESCO-IOC

Introduction

As the succeeding agenda of Millennium Development Goal (2001~2015), the United Nations adopted the 2030 Agenda for Sustainable Development for the period of 2016 to 2030 in which 17 Sustainable Development Goals (SDGs) were set out (United Nations, 2015). SDG 14, life below water, states the goal of 'conserve and sustainably use the oceans, seas and marine resources for sustainable development'. It is the first time that the affair on the oceans and seas is taken up as a separate key objective of UN agenda, which reflects the global community's appreciation of the role and benefit of the ocean for human well-being and prosperity. Human societies understand that well-functioning ocean is essential

for ensuring the health of the earth system and sustaining human life. To achieve SDGs, especially SDG14, the United Nations agreed to launch the initiative of UN Decade of Ocean Science for Sustainable Development (2021-2030) and mandated Intergovernmental Oceanographic Commission (IOC) of UNESCO to make its implementation plan by 2020. The UN Decade roadmap emphasizes interphase between ocean science and policy and engagement of diverse stakeholders such as citizens, NGOs, international organizations and research institutions (UNESCO, 2019).

Ocean cultural heritage (OCH) or marine cultural heritage and ocean literacy find close link to SDGs and the UN Decade. OCH represents all kinds of human interactions with the oceans and seas and ocean literacy demonstrates the current status of human understanding on the oceans. The reach of ocean science in the UN Decade roadmap encompasses broadly not only the natural sciences but also social sciences and human dimensions. OCH includes the tangible remains such as shipwrecks, submerged marine sites, coastal archaeology, ports and harbors, maritime ecologies, and geology and also the intangible components such as cultural practices, artistic and linguistic expressions, local skills, traditional and historical knowledge (Henderson, 2019). That is, OCH tells the human actions on economic development, environment management, social justice, education, and identity that have been associated with the oceans and seas (Henderson, 2019).

Development of human societies and civilization has been closely connected to the sea. Even in the modern days, sea travel, container shipping and maritime commerce play a major role in development and maintenance of human societies. For sustainable development, therefore, current and future human interaction with the oceans needs to be changed into a sustainable manner. As people and communities are the main players of development, there is growing awareness that OCH and ocean literacy should be considered as the integral parts of the implementation of SDGs and relevant activities of the UN Decade (Henderson, 2019).

UN Sustainable Development Goal 14

Currently over 40% of the world human population live within 100 km of the coast and the proportion will increase up to about 60% by 2050 (Neumann et al., 2015). Many major cities have developed at the coast and more cities are growing in that region. The coastal zone attracts people and provides diverse socio-economic benefits such as seafood, clean air and refreshment, and job opportunities from fisheries, tourism, import and export shipping, and manufacturing industries (Kim et al, 2019).

The survival of human being is, in fact, dependent on the healthy oceans and seas. They produce about 50% of the oxygen in the atmosphere and absorb one third of the carbon dioxide emitted from the fossil fuel. They serve as a large reservoir of the earth water containing 97% of it. Through its circulation from the sea to the land and among the oceans, the water regulates the climate and allows the life to survive and flourish.

Up until the middle of the 20th century, the ocean was regarded as a space of Midas that has unlimited resources and cleanses every pollution. As the human population grows and marine activities increase, the ocean reveals its limitation. Human impact on the ocean overwhelmed the self-sustaining capacity of the ocean, making it suffer from ecosystem destruction, resources depletion, water quality deterioration, severe heavy metal pollution, and huge amount of plastic debris.

Being concerned about the health of the ocean and the seas, the United Nations takes up the affair of the ocean as a separate article in the 2030 agenda, the Sustainable Development Goal 14 (SDG14). Life below water, SDG14 consists of 7 targets and 3 action-oriented aims. These are to reduce marine pollution, to protect and restore marine and coastal ecosystems, to reduce ocean acidification, to practice sustainable fishing that effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, to conserve at least 10 percent of coastal and marine areas, to end subsidies contributing to overfishing, to Increase the economic benefits to small island developing States and least developed countries from sustainable use of marine resources, to increase scientific knowledge, research capacity and technology transfer for ocean health, to support small scale fishers, and

to implement and enforce international sea law (United Nations, 2015).

UN Decade of Ocean Science for Sustainable Development (2021-2030)

The Intergovernmental Oceanographic Commission (IOC) whose role is set forth in SDG14 is mandated by the UN General Assembly to make the implementation plan of the UN Decade of Ocean Science for Sustainable Development (2021-2030). Executive planning group for the UN Decade was assembled under the IOC secretariat and came up with the Roadmap for implementation of the UN Decade. The implementation roadmap sets the vision of the Decade as ‘ocean science we need for the future we want’ and two goals as to generate the scientific knowledge and underpinning infrastructure and partnerships needed for sustainable development of the ocean and to provide ocean science, data and information to inform policies for a well-functioning ocean in support of all sustainable development goals of 2030 Agenda (UNESCO, 2019a).

The roadmap manifests that six societal objectives will be achieved once the UN Decade initiative has completed. The objectives are ‘a clean ocean’, ‘a healthy and resilient ocean’, ‘a predictable ocean’, ‘a safe ocean’, ‘a sustainably harvested and productive ocean, and ‘a transparent and accessible ocean’. As a first step towards achieving these objectives, the implementation roadmap identifies 7 R&D priority areas: 1) a comprehensive map (digital atlas) of the ocean, 2) a comprehensive ocean observing system, 3) a quantitative understanding of ocean ecosystems and their functioning as the basis for their management and adaptation, 4) data and information portal, 5) ocean dimension in an integrated multi-hazard warning system, 6) ocean in earth-system observation, research and prediction, with engagement of social and human sciences and economic valuation, 7) capacity building and accelerated technology transfer, training and education, ocean literacy. It is also expected that the outcomes of the UN Decade initiative will contribute to not only the SDG14 (Life below water) but also other goals of the 2030 Agenda such as SDG1 (eliminate poverty), SDG2 (erase hunger), SDG3 (establish good health and well-being), SDG6 (improve clean water and sanitation), SDG8 (create

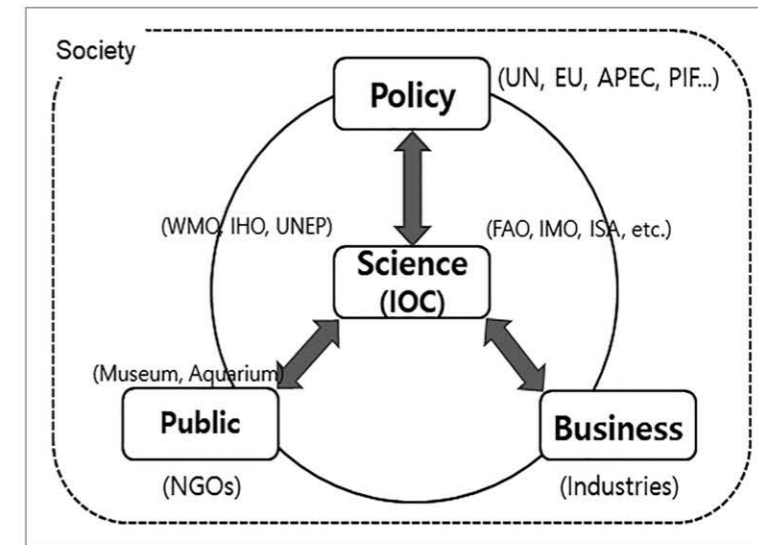


Figure 1. A model showing relationship and interaction among diverse stakeholders for implementation of the UN Decade of ocean science for sustainable development (2021-2030)

decent work and economic growth), SDG9 (increase technology, innovation, and infrastructure), SDG10 (reduce inequality), SDG11 (mobilize sustainable cities and communities), SDG13 (organize climate action), and SDG16 (guarantee peace, justice, and strong institutions) (UNESCO, 2019a).

The IOC secretariat and the executive planning group held the 1st global planning meeting of the UN Decade at Copenhagen Denmark on May 13-15, 2019. A variety of stakeholders including the IOC member states, international organizations of UN-Oceans, aquariums, NGOs, industries, charities, archaeologists, and education experts attended the meeting and expressed their strong support of the UN Decade initiative by reaffirming its essential role in achieving SDGs, especially SDG14. Relationship and interaction among the stakeholders in the implementation of the UN Decade is modeled in Figure 1. The 1st global planning meeting was followed by regional workshops one of which was held at Tokyo Japan on July 31-August 2, 2019 for the Western Pacific. Regional workshops were planned to identify regional marine issues and to develop collaboration projects addressing the issues which would be incorporated into the science action plan of the UN Decade.

Ocean Cultural Heritage, SDG14 and the UN Decade

As ocean cultural heritage concerns with all kinds of human interactions with the oceans and seas, most of the SDG14 targets have relevance to OCH (Henderson, 2019). SDG14.1 reduction of marine pollution requires a transformation in human's conception on the ocean and the lifestyles. SDG14.2 protection and restoration of marine and coastal ecosystems, SDG14.4 practice of sustainable fishing, and SDG14.7 increase of the economic benefits to small island developing States and least developed countries by sustainable use of marine resources e.g. eco-tourism and artisanal fishery can only be achieved from learning of the local ecological knowledge and sustainable living of coastal communities.

The roadmap of the UN Decade makes note of ocean cultural heritage in one of its R&D priority areas, saying 'ocean in earth-system observation, research and prediction, with engagement of social and human sciences and economic valuation'. Contribution of ocean cultural heritage to fulfilment of the societal objectives of the UN Decade is summarized in Trakadas et al. (2019), as follows:

"A clean ocean; Cultural heritage can contribute to a clean ocean by enabling better understanding of the extent and risks of legacy pollution from shipwrecks, mining waste and land-based sources.

A healthy and resilient ocean; Culture heritage is fundamental to understanding how many coastal and marine ecosystems achieved their present form, and to understanding the pressures upon them; Cultural heritage can be an important component of marine ecosystems.

A predicted ocean; Understanding "Ocean Past"—human interaction with the historic environment—is essential to understanding our ocean present and to forecasting change and its implications for human well-being and livelihoods.

A safe ocean; Cultural heritage informs the understanding of coastal inhabitation and intervention in the past and present— including the impact of previous catastrophes—to identify risks, present examples of human adaptations, and to encourage resilience.

A sustainably harvested and productive ocean; Cultural heritage is a major contributor to the Blue Economy, especially through recreation and tourism; increasing productivity should enhance—not damage— irreplaceable cultural

heritage.

A transparent and accessible ocean; Information about cultural heritage is fascinating to the public and enables engagement with many topics of Ocean Literacy; information about cultural heritage is also essential to understanding the past, present and future of humanity's relationship with the seas and oceans."

Relevance of ocean cultural heritage to the UN Decade became evident when its 1st global planning meeting was held at the National Museum of Denmark. The meeting venue, presence of large number of marine archaeologists, and holding of a side event on underwater cultural heritage proclaimed such relevance. Archaeologists from North and South America, Africa, Europe, Asia and Oceania proposed to create an Ocean Decade heritage network (Trakadas et al. 2019). The summary report of the 1st global planning meeting states that cultural heritage will be at the forefront of developing the new narratives that are necessary to deliver the ocean we want (UNESCO, 2019b)

Another key activity on ocean cultural heritage in relation to the UN Decade has arisen among Asian countries. In conjunction with ASEAN-Korea commemorative summit, a forum on ocean heritage and ocean literacy for the UN Decade of ocean science for sustainable development was held at Busan Korea on Nov. 22-23, 2019. Participants of the forum including ocean culture experts, anthropologists, ecologists, policy makers, and NGOs have reached an agreement to launch an Asian society of ocean heritage and ocean literacy

Ocean Literacy and the UN Decade

Ocean literacy represents the understanding of the ocean's influence on the human and human's influence on the ocean (Santoro et al., 2017). To achieve the societal objectives, the UN Decade emphasizes engagement of the public and increase of ocean literacy. The UN Decade roadmap includes ocean literacy in one of its R&D priority areas as 'capacity building and accelerated technology transfer, training and education, ocean literacy'.

Aiming to facilitate the creation of an ocean-literate society that is able to make informed and responsible decisions on ocean resource and ocean sustainability,

Santoro et al. (2017) summarized essential principles on ocean literacy as follows;

Principle 1. The Earth has one big ocean with many features.

Principle 2. The ocean and life in the ocean shape the features of Earth.

Principle 3. The ocean is a major influence on climate and weather.

Principle 4. The ocean made the Earth habitable.

Principle 5. The Ocean supports a great diversity of life and ecosystems.

Principle 6. The ocean and humans are inextricably interconnected.

Principle 7. The ocean is largely unexplored.

They also suggest that multi-perspective approaches need to be taken in designing the activities on ocean literacy such as the scientific, the historical, the geographic, the gender equality, the value, the cultural, and the sustainability perspectives. Some examples of ocean literacy activities are proposed: the waves, the role of international legislation to protect the high seas, exploring the energy potential of the ocean, ocean currents and ocean drifters, build a buoy, how ocean acidification occur, let's go fishing, Integrated Multi-Trophic Aquaculture, let's explore the deep sea, watershed activity using anadromous fish cherry salmon to understand land-ocean connection, eat the right fish (fish size matters), being a fisherman, and how deep the sea is (Santoro et al., 2017).

The need of ocean literacy for the success of the UN Decade was again emphasized at the 30th session of the IOC assembly held in Paris France on June 26-July 4, 2019 in which progress report on the preparation of the UN Decade was one of the main agenda. A side event called 'ocean literacy: opportunities and challenges' was held during the session and encouraged IOC Member States to develop and support ocean literacy activities on the domestic and international stages. Currently, IOC runs an internet portal on ocean literacy (<https://oceanliteracy.unesco.org/home/>). A number of national and international organizations touching on ocean literacy such as the national marine educators association (NMEA) in the United States join the UN Decade initiative.

The regional workshop held at Tokyo Japan on July 31-August 2, 2019 for designing the UN Decade activities in the Western Pacific also witnessed an activity proposal on the ocean literacy. The chief director of Korea national maritime

museum, Dr. Kang-Hyun Joo presented the museum's activities on ocean literacy and ocean heritage and solicited creation of a regional cooperation activity in the Western Pacific. The workshop report summarized this point in the knowledge gap of 'increase communication and awareness' which states the needs of holistic approach of citizen science, function of aquariums and museums, role of digital media, and increase ocean literacy.

Summary

Ocean cultural heritage concerns with all kinds of human interactions with the oceans and seas, which represent human actions on economic development, environment management, social justice, education, and identity associated with the oceans and seas. Closely linked to ocean cultural heritage, ocean literacy indicates the communities' understanding of the ocean's influence on the human and human's influence on the ocean. As people and communities are the main players of development, there is growing awareness that ocean cultural heritage and ocean literacy should be considered as the integral parts of the implementation of SDGs and the relevant activities of the UN Decade. An ocean decade heritage network has been initiated by a group of archaeologists from North and South America, Africa, Europe, Asia and Oceania and an Asian society of ocean heritage and ocean literacy has been launched among the ocean culture experts, anthropologists, ecologists, policy makers, and NGOs in the Western Pacific. In addition, a number of national and international organizations touching on ocean literacy such as the national marine educators association (NMEA) in the United States are joining the activities of the UN Decade.

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