

[CONCISE GUIDES]
to the UNITED NATIONS
SUSTAINABLE DEVELOPMENT GOALS

SDG14

Life Below Water

Towards Sustainable
Management of our
Oceans

UMESH CHANDRA PANDEY ,
SUBASH RANJAN NAYAK , KRISHNA ROKA
and TRILOK KUMAR JAIN

SDG14 – LIFE BELOW WATER

CONCISE GUIDES TO THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

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PREFACE

Oceans constitute about three-quarters of the earth's surface; they contain 97% of the earth's water and represent 99% of the living space of the planet by volume. However, about 95% of the ocean is still unexplored, around 91% of oceanic species are yet to be classified and large numbers of fish species (1,851 species as reported in 2010) are at risk of extinction. Even though human beings largely inhabit land, they have a significant dependence on oceans.

The oceanic processes and their biodiversity make the earth habitable, as they contribute many ecosystem services (CBD, 1992; Convention on Biological Diversity, n.d.). In addition, coastal and marine resources contribute US\$28 trillion to the global economy every year. Importantly, oceans absorb about 40% of the carbon dioxide produced by human beings, thereby moderating the impact of global warming. They are the world's largest sources of protein, with a large proportion of the human population (over 3 billion) depending upon them as their primary source of protein. The estimated market value of such marine and coastal resources and industries is about US\$3 trillion per year, which amounts to 5% of global gross domestic product (UN Web Site, n.d.-a).

So far, we know little about the importance of oceans to humans and other land species. Oceanic temperature, chemistry, currents and life regulate global systems and processes which ensure the availability of rainwater, drinking water and oxygen. Human interventions, such as pollution,

depleted fisheries and loss of coastal habitats, are adversely affecting the sustainability of oceanic life. About 40% of the world's oceans are already heavily affected by such activities (UN Web Site, n.d.-a). Unmonitored fishing is also causing ocean fisheries to generate US\$50 billion less per year than they could. Hence, there is increasing realisation that protecting our oceans and the lives that depend on them is a global responsibility. The global community has now committed to achieving the sustainable management of marine ecosystems by 2020 and, in a further five years, to significantly reduce marine pollution of all kinds. The Sustainable Development Goals (SDGs) of the United Nations have viewed these issues from a very broad perspective. It is clear that we need an international scientific partnership, regulation of harvesting and fishing and enhancement of our research and knowledge on issues critical to the survival of life underwater. In the context of the SDGs, the following issues need immediate attention:

- (a) How does human life on earth depend on oceanic processes and biodiversity?
- (b) How is marine life under threat from pollution of various kinds?
- (c) What are the repercussions of the threat to oceanic life for sustainable development?
- (d) How can marine biodiversity contribute to the economy of developing nations, in particular, of small island developing states and the least developed nations?
- (e) What are the emerging legal issues in the conservation and sustainability of oceans and their resources?

This short book gives a glimpse into life under water, its impact on human lives and the need for sustainable management of these systems. It is primarily meant for development

professionals, policy makers, university and college teachers and students. Chapter 1, the 'Introduction', describes the dependence of human beings on coastal and marine resources. It further highlights how oceanic life sustains the livelihoods of people living in coastal areas. The chapter begins with how the ocean and its ingredients, like temperature, chemistry, currents and biodiversity, play a significant role in making the earth habitable. This is followed by a discussion on human interventions and their repercussions for oceanic processes. The chapter also includes some functional links between oceans and sustainable development. Chapter 2, 'Oceans and Sustainable Development', gives a glimpse into macrolevel issues, such as oceanic acidification and warming, and their impact on oceanic life. The chapter also relates these issues to sustainable development. Chapter 3, 'Sustainable Management and Protection of Marine and Coastal Ecosystems', describes the need for sustainable management and protection of marine and coastal ecosystems. Good practices initiated in some countries are also highlighted in this chapter.

Chapter 4, 'Marine Pollution', elaborates on the impact of human interventions on oceanic life and the various ways in which the sustainability of the oceanic system is threatened. This chapter discusses the major sources of pollution adversely affecting the sustainability of oceanic processes and, consequently, the livelihoods of people. The impacts of such pollution on oceanic life are also described in this chapter. Chapter 5, 'Marine Biodiversity and Development in Small Island Developing States (SIDS)', specifically describes the contribution of marine biodiversity to the development of coastal nations, particularly to small island developing states. It discusses some examples of sustainable management and development programmes from these countries. Chapter 6, A 'Legal Framework for the Conservation and Sustainable Use of Oceans', discusses maritime laws, their historical evolution

and relevance in the present-day context. The last chapter, Chapter 7, 'The Road Ahead', summarises various aspects of life under water in need of immediate attention.

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