

Sustainable Future of Coastal and Marine Ecosystems in the Indo-Pacific Ocean

UEMATSU, Mitsuo^{1*}

¹Atmosphere and Ocean Research Institute, The University of Tokyo

The Indo-Pacific Ocean Region encompasses diverse coastal ecosystems, as represented by coral reefs, mangrove forests, sea-grass beds, and even deep basin over 4000 m deep. These diverse environments harbor the unique and extremely high biodiversity of the region, known as the major biodiversity hotspot in the world. However, the region is also under serious threat of environmental decline from various human impacts due, for example, to loads of pollutants from land and habitat destruction associated with resort development and fisheries. There are also concerns about negative impacts of global climate change associated with ocean acidification.

As one of Future Earth initiatives, we should establish future perspectives and needs for strengthening sustainable ocean environment and development. A project aims at further expanding the network of the scientific and socio-economic studies and education on the Indo-Pacific Ocean Region, through (1) research collaboration applying new approaches and methodologies such as satellite remote sensing, molecular genetic analyses, and high-precision analyses of biogeochemical parameters, (2) integrative, inter-disciplinary ecosystem researches, and (3) establishment of core of coastal marine science and socio-economy in each country and multilateral network. Through these activities the project aims at enhancing education of researchers who will play major roles not only in domestic but also in international activities on global issues.

As a practical matter that impeded harmonized implementation of the program, there will be a large gap among the member countries in their funding capabilities, resulting in the shortage of funding in some countries. This may be partly due to the differences in political priorities for basic environmental and/or socio-economic research among countries. There are also problems that the importance and practical application of basic research to urgent environmental issues have not effectively been reflected in the response of funding organizations, policy makers, and/or popular audience, despite our efforts to demonstrate and disseminate these issues in various occasions.

Keywords: Indo-Pacific Ocean region, marine ecosystem, coastal region, biodiversity, inter-disciplinary research, impacts of global climate change