



ROPME/WD/EBM-WG1-2

Discussion Paper on Regional Priorities in the ROPME Sea Area (RSA)

Aim

This paper provides an overview of the existing issues related to the ROPME Sea Area. Eight issues were highlighted: (1) implementation of the Kuwait Action Plan, Convention and protocols; (2) oil spills; (3) coastal development; (4) wastewater; (5) fisheries; (6) loss of biodiversity; (7) data and information sharing; and (8) education and capacity development.

The Working Group members are invited to consider the discussion in the paper and address the following two questions:

1. Do the eight issues sufficiently cover the regional issues? Are there other important or emerging issues to be considered in the RSA?
2. How would you rank the importance of the issues? What issues need to be given the priority?

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1. Introduction

1. The ROPME Sea Area (RSA) applies to the sea area in the Region bounded in the south by the following rhumb lines: from Ras Dharbat Ali ($16^{\circ} 39'N, 53^{\circ} 3'30''E$) to a position in $16^{\circ} 00'N, 53^{\circ} 25'E$; thence through the following positions: $17^{\circ} 00'N, 56^{\circ} 30'E$ to $20^{\circ} 30'N, 60^{\circ} 00'E$ to Ras Al-Fasteh ($25^{\circ} 04'N, 61^{\circ} 25'E$). As shown in the Figure 1, the inner RSA is a semi-enclosed marginal sea, connected to the Sea of Oman through the Strait of Hormuz.

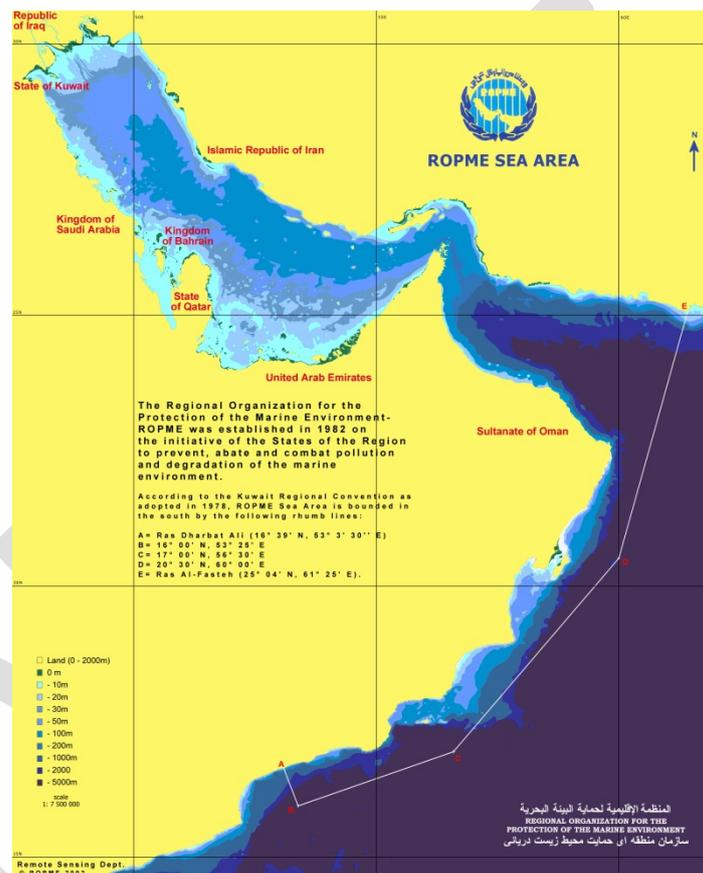


Figure 1 ROPME Sea Area

2. The RSA is home to diverse species including shrimp, demersal fishes, mangroves, coral reefs and seagrass beds. Some of the species in the RSA are socioeconomically important to fisheries (Sheppard et al. 2010).
3. The RSA is surrounded by eight countries: Bahrain, I.R. Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (the ROPME Member States). Over the decades, the ROPME countries have experienced rapid population growth. The total population increased from 46.5 million in 1970 to approximately 150 million in 2010 (ROPME 2013). The population increase and associated urban development are posing pressures on the RSA. Dredging and filling operations are serious environmental concerns although the impacts are not well understood (Sale et al. 2011).

4. The RSA is also characterized by the prosperous petroleum industry. Since the discovery of oil in the early 20th century, the ROPME countries have experienced rapid economic growth driven by the production of petroleum and related materials. The RSA thus has served as an important pathway for the shipment of oil. For example, 49% of the produced oil in the region in 2010 passed through the RSA (ROPME 2013). Due to the intensive shipping, however, the RSA has experienced numerous oil spill incidents.
5. The number of oil spill incidents especially increased during the wars. The region has experienced three wars in the last three decade: the Iraq-Iran War (1980-1988), the 1991 War and the War over Kuwait in 2003. For example, during the 1991 War, over 700 oil wells were destroyed and a large amount of crude petroleum was released to the RSA. It is estimated that 30,000 marine birds were killed while over 20% of mangroves and 50% of coral reefs were affected during the period (Nadim et al. 2003).
6. However, a strong regional cooperation mechanism exists for the protection of the marine environment. Established in 1979, the Regional Organization for the Protection of the Marine Environment (ROPME) serves as a platform where all the eight ROPME countries cooperate on environmental issues of the region. The Kuwait Convention and the Action Plan for the Protection of the Marine Environment and the Coastal Areas of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates, which set out regional actions, were both adopted in 1978. Paragraph 7 of the Kuwait Action Plan clearly states that *“the protection of the marine environment is considered as the first priority of the Action Plan, and it is intended that measures for marine and coastal environmental protection and development should lead to the promotion of human health and well-being as the ultimate goal of the Action Plan”*. Under this vision, the ROPME countries have collaborated for more than 35 years.
7. Four protocols have been adopted under the framework of the Kuwait Convention: the Protocol concerning Regional Co-operation in Combating Pollution by Oil and other Harmful Substances in Cases of Emergency (adopted in 1978), the Protocol concerning Marine Pollution resulting from Exploration and Exploitation of the Continental Shelf (adopted in 1989), the Protocol for the Protection of the Marine Environment against Pollution from Land-Based Sources (adopted in 1990) and the Protocol on the Control of Marine Transboundary Movements and Disposal of Hazardous Wastes and other Wastes (adopted in 1998). These legal instruments have supported implementation of the Kuwait Action Plan.
8. Although ROPME has a long history of providing a peaceful platform for the neighboring countries with the common vision to protect the RSA, unfortunately the progress in the implementation of the Action Plan is not well reported (UNEP 2015). Some have argued that the ROPME framework has not been fully effective although it has a great potential to become more important agent for the protection of the RSA (Sale et al. 2011). Nadim et al. (2008) analyzed the strength and weakness of ROPME and found that a lack of prioritization of critical coastal issues is one of the weaknesses.

9. This paper, therefore, aims to analyze regional priorities in order to stimulate discussion on future actions. A common understanding on the current regional priorities will help identify areas for further actions.

2. Issues in the RSA

10. Below eight issues related to the RSA are reviewed in order to catalyze discussions among the ROPME countries. However, it should be noted that this is not an exhaustive list of issues or do they reflect the order of importance. The aim is rather to catalyze a discussion on current issues and problems in the RSA that require regional cooperation.

2.1 Implementation of the Kuwait Action Plan, Convention and protocols

11. The Kuwait Convention provides the legal framework for the ROPME countries to protect the RSA based on the Kuwait Action Plan. However, the existence of the convention and protocols alone does not guarantee improvement of the marine environment. Commitments under the Convention need to be reflected at the national and local level (Lintner et al. 1996). In the ROPME region, it is not well studied how the action plan, convention and its four protocols have been implemented and how these legal instruments contributed to the health of the RSA.
12. One possible indicator of effectiveness of these instruments is the state of the RSA. With this regard, the State of Marine Environment Reports (SOMER) helps understand the environmental status of the RSA. According to SOMER (2013), the ROPME continues to degrade despite the continuous efforts of the ROPME countries.

2.2 Oil spills

13. As the petroleum and its related activities are the main economic sources in the region, oil exploration, production and transportation are the key issues for the sustainable development of the region. Due to the intensity of the activities, oil spills have been one of the major sources of pollution in the RSA (Naser 2014). Various sources could lead to oil spills including offshore oil wells, underwater pipelines, oil tanker incidents, oil terminals, landing and handling operations, weathered oil and tar balls, illegal dumping of ballast water and military activities (Sale et al. 2010).
14. Oil pollution can lead to physical and chemical alteration of natural habitats, alteration in species composition, causing loss of species and toxic effects on flora and fauna¹. It could lead to a reduction of photosynthetic rates of phytoplankton and marine algae, the accumulation of contaminants in food chain (Naser 2014) and the loss of seabirds (Clark 1983). These impacts heightened during the war time due to the intensity of oil spill incidents (Nadim et al. 2003). It is estimated that 10.8 million barrels of oil were spilled in the RSA during the 1991 War (Massourd et al. 1998).

¹<http://www.itopf.com/fileadmin/data/Documents/Papers/environ.pdf>

15. In order to deal with oil pollution and minimize the impacts on the RSA, the ROPME countries adopted the protocols such as the Protocol concerning Regional Cooperation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency (1978) and the Protocol concerning Marine Pollution resulting from Exploration and Exploitation of the Continental Shelf (1989). The ROPME Secretariat also initiated the mussel watch programme to regularly monitor the effects from oil pollution and other contaminants. The monitoring programme contributed to the understanding of the oil pollution level in the region. According to the monitoring programme, current oil contaminant level stays within the normal range (ROPME 2013). Although the pollution level seems to be controlled; oil spills continue to be a concern in the RSA.

2.3 Coastal development

16. The region has experienced one of the world's highest rates of economic growth thanks to the oil and gas reserves (Khan 2007; Sale et al. 2011). With the economic growth combined with the increasing population, the region has experienced a rapid urbanization, characterized by the creation of artificial islands. Increasing demands for tourism have also contributed to coastal development activities for recreational purposes.

17. Although the urbanization contributes to the economic growth, dredging and reclamation have posed a serious threat to the ecological system of the RSA causing habitat alteration and destruction. An estimate suggested that approximately 40% of the coasts in the Region have already been developed (Naser 2014). The dredging and development for industrial, commercial, and residential use have impacted on intertidal flats, mangrove forests, seagrass beds and coral reefs (Sale et al. 2011).

18. As the population continues to grow, reclamation and dredging for coastal development will likely to accelerate in the region (Naser 2014). Thus, there is an increasing need for environmental regulatory authorities to carefully guide development activities (Sale et al. 2011). For the long-term sustainability development of the region, these activities need to be conducted within ecological limits, considering interactions with and impacts on other ecological components.

19. The ROPME Secretariat has published a guideline for the Integrated Coastal Zone Management (ICZM), entitled "Integrated Coastal Area Management: Guidelines for the ROPME Region". However, it is not well reported how the ROPME countries are implementing ICZM. Since the Status of the Marine Environment Report (ROPME2013) identifies the implementation of ICZM as one of the main areas of regional cooperation, greater attention could be paid to ICZM as a tool to manage coastal development activities based on the ecosystem approach.

2.4 Wastewater from desalination and other industry

20. The region largely depends on desalination for drinking water given the scarcity of freshwater. Approximately 70-90% of the population depends on desalinated drinking water (Nadim et al. 2008). While desalinated water provides various benefits to the society and human health, it

could have negative impacts on the RSA. The wastewater containing pre and post treatment chemicals as well as thermal pollution may impact on water quality and flora and fauna of the RSA. Continuous exposure to heated wastewater from desalination plants, which contain heavy metals and chemical residues, may impact on the flora and fauna of the RSA if the organisms cannot adapt to the new condition (Latteman and Hopner 2008).

21. Other industries such as energy producers and heavy industrial facilities also discharge heated wastewater into the RSA. Although the impacts of the heated wastewater to the RSA are not well studied (Sheppard et al. 2011), the long-term effects on the RSA are of concern.
22. The increasing volume of domestic wastewater is also a worrying issue. The coastal development with the increasing urban population has resulted in the increasing volume of urban wastewater to the RSA. The domestic sewage is not always completely treated while the capacity of the wastewater treatment plants in the region has been improved (ROPME 2013). Since the volume will continue to increase as the population rises, domestic sewage could be an important pressure on the RSA.

2.5 Fisheries

23. Fish is the second most important natural resources in the region next to oil (Lavieren et al. 2011). It is also an important nutritional source of historical and traditional significance (Sheppard et al. 2010). Furthermore, the fisheries sector provides employments to 100,000 people in the region (Manini 2010). Fisheries in the RSA remain largely artisanal (Sale et al. 2010) targeting predatory demersal species (groupers, emperors) while commercial vessels target on shrimps and pelagic species (Sheppard et al. 2010).
24. The data on landing suggest that several commercially important fish species are in severe decline (Sheppard et al. 2010). It has been reported that harmful algal blooms (HABs) led to several fish mass mortality events in the RSA (Thangaraja et al. 2007). In addition, other factors such as overfishing, habitat alteration and reduced influx of river waters seem to have contributed to the decline (Sheppard et al. 2010). The decline in the fish landing of several species is a serious concern for long-term food security and sustainability of fisheries in the region.
25. The impacts of fishery activities on the health of ecosystems are also an important issue. By catch, ghost fishing and mortality of immature fish negatively impacts on the marine species in the RSA. These may cause negative impacts on the biodiversity of the RSA, which underpinned functioning of the ecosystems. The expansion of aquaculture and mariculture activities in the RSA seems to have caused the loss of habitats (ROPME 2013) but the magnitude of the impacts is not well reported.

2.6 Loss of biodiversity

26. With the increasing population, the pressure on the biodiversity in the RSA is rapidly increasing. Coastal development and wastewater discharge associated with population increase have a

serious implication on the biodiversity of the RSA. Habitat fragmentation and alteration due to urban, industrial and tourism development negatively impacted sensitive fauna and flora such as coral reefs. Climate change adds pressures on the vulnerable ecosystems. Severe coral bleaching events have been observed (Rezai et al. 2004). Invasive species brought by ballast water may also be considered as a serious risk to the biodiversity of the RSA. It is reported that vast majority of ballast water used to be discharged without treatment in the RSA. Although not much is known on the invasive species in the RSA, precautionary management actions are encouraged in order to prevent severe impacts in the future (Lavieren et al. 2011).

27. It has been proposed that creation of a regional network of Marine Protected Areas (MPAs) could be an option (Sheppard et al. 2010; Van Lavieren and Klaus 2012) to restore the degraded ecosystems and biodiversity, strengthening regional collaboration for the management of the MPAs. According to ROPME (2013), there are 176 MPAs in the region but the effectiveness of the existing MPAs is not well understood. Since the health of the RSA is reported to be in decline (Sheppard et al. 2010), measures to increase effectiveness of existing management practices as well as new approaches could be examined.

2.7 Data and information sharing

28. Despite the long lasting cooperation among the ROPME countries within the ROPME framework, the data and information are reported to be limited (Shppard et al. 2010). Compiled information on ongoing projects and activities would help understand cumulative impacts. For the fisheries sector, the Regional Commission for Fisheries (RECOFI) serves as the regional cooperation platform. While RECOFI has allowed mutual cooperation for fisheries related issues, further regional cooperation for fisheries research and management has also been called for (Mannini 2010).
29. Therefore data and information sharing at the level of governments, managers and researchers in ROPME countries remain to be important both for the environment and fisheries sectors. Regional networks of researchers or professionals working on the same field or thematic areas may help accelerate inter-regional knowledge sharing.
30. For a better data sharing, Nadim et al. (2008) suggested creating a regional database on coastal activities. Such a database containing the best practices in the region could be useful for the purpose of mutual information sharing.
31. In addition to knowledge sharing based on thematic areas, enhanced inter-sectoral information sharing can be considered in order to move towards a more integrated management of the RSA. Some of the environmental data may be useful for the fisheries managers and vice versa. Data sharing on common thematic issues such as by-catch and marine litter could help accelerate inter-sectoral collaboration.

2.8 Education and capacity development

32. ROPME (2013) has identified that education and training on all the aspects of sustainable management of the marine and coastal ecosystems are fundamental for the region:

“ROPME and its Member States, should invest heavily in human resources development through education, training, and capacity development programmes in all aspects related to protection and integrated management of the coastal and marine ecosystems, and the sustainable development of the RSA. In this respect, regional planning for building the Region’s environmental expertise and capabilities is crucial, and ROPME is encouraged to draw upon the important and critical mass of scientists and local environmental institutions and expertise of the Region”

33. Sustainable development of the region through the implementation of EBM cannot be achieved without participation of and supports from the governments, researchers, environment and fisheries managers and the citizen. With this regard, the ROPME Secretariat together with the ROPME countries may consider investing on capacity development of the regional human resources in order to address environmental, social and economic challenges in the region.
34. The citizens who are aware of and trained for the management and policies of the marine and coastal ecosystems will help keep an eye on the changing status of the RSA. Although the region may continue receiving supports from external experts, it is encouraged to develop local capacities and expertise on environmental management so that there could be a high continuity in the management activities (Sale et al, 2011).

3. Towards the Regional EBM Strategy in the RSA

35. The Kuwait Action Plan sets out the actions for cooperation on the environmental assessment, environmental management, legal components and institutional and financial arrangements. The activities planned through Paragraphs 19 and 20 of the Kuwait Action Plan for the environmental management of the RSA are as follows:

19. To achieve the objectives of the development and environmental management component of the Action Plan the following preparatory activities should be undertaken:

- 19.1 preparation and up-dating of a directory of Government-designated institutions available in the Region and active in fields related to the environmental management components of the Action Plan;*
- 19.2 assessment of present and future development activities and their major environmental impact in order to evaluate the degree of their influence on the environment and to find appropriate measures to either eliminate or reduce any damaging effects which they may have;*
- 19.3 identification of the most relevant ongoing national, regional or internationally supported development projects which have beneficial environmental effects such as the various fisheries projects of FAO, the environmental sanitation activities of the World Health Organization, and the assistance in industrial waste treatment provided through the United Nations Industrial Development Organization. The most significant of these projects should be strengthened and expanded to serve as demonstrations and training sites on a regional basis.*

20. Furthermore, in view of the priorities and needs of the region, the following co-operative programmes relevant to the management of regional environmental problems stemming from national development activities will be undertaken:

20.1 *formulation of regional contingency plans for accidents involving oil exploration, exploitation and transport, and strengthening the meteorological services contributing to the development of contingency plans and to their execution in co-ordination with existing or future marine regional meteorological programmes;*

20.2 *assistance in development of national capabilities in engineering knowledge needed for regional environmental protection;*

20.3 *strengthening the national public health services and their co-ordination whenever transboundary interests require it;*

20.4 *rational exploitation and management of marine living resources, including aquaculture, on a sustainable basis, and the establishment of protected aquatic and terrestrial areas, such as marine parks, wetlands and others;*

20.5 *co-ordination of marine and land transport activities and the creation of a regional transport co-ordinated programme with special emphasis on port-generated pollution;*

20.6 *development of principles and guidelines for coastal area development and management through workshops;*

20.7 *co-ordination of national water management policies including community water supply and water quality control, whenever they may have impact on the marine environment of the Region;*

20.8 *upkeep of records of oil pollution incidents in the Region with relevant information on the impact of such pollution on the marine environment.*

36. While there should be a review on the progress made on the Action Plan, it is also necessary to examine whether the Action Plan adopted in 1978 truly reflects the current priority issues in the RSA. The development of a Regional EBM Strategy will provide an opportunity to examine current regional priorities and concerns across the sectors in relation to the RSA. These priorities could also be reflected in the Action Plan and relevant programmes in the future.

37. The 2030 Agenda and the SDGs were adopted by Member States in September 2015. While there are many goals that are relevant to oceans and seas, Goal 14 is dedicated to the marine and coastal environment. Therefore, these targets are of particular relevance to the RSA:

“Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.

2. 4 By 2030 ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality

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

14.2 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

14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

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

14.5 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

14.6 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 (Footnote 2: Taking into account ongoing World Trade Organization negotiations, the Doha Development Agenda and the Hong Kong ministerial mandate)

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.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.b Provide access for small-scale artisanal fishers to marine resources and markets

14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, 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''

38. The Aichi Biodiversity Targets that are particularly relevant to the marine and coastal ecosystems are the following:

Target 6. by 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits; and

Target 10. by 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.”

Target 11. “by 2020, at least 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes;

39. These global targets could serve as an important guidance for setting ecological objectives or priority issues in the RSA. On the other hand, it would be helpful to consider how the Regional EBM Strategies will help the ROPME countries achieve these global targets so that the strategy will lead to sustainable development in the region, supported by the healthy and productive RSA.
40. Based on the above discussion, the participants of the Working Group meeting are encouraged to identify current regional priority issues across sectors that are relevant to the RSA. These priorities areas could be areas where different sectors could make efforts under the same ecological objectives. A common understanding of priorities and issues at the regional level will direct the goal setting for the development of the Regional EBM Strategy.

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