

# First South Asia Sub-regional Workshop of UNEP/CMS Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range in the South Asia

6-7 June 2011  
Tuticorin, India

## EXECUTIVE SUMMARY



July 2011



भारतीय वन्यजीव संस्थान  
Wildlife Institute of India



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## 1 WORKSHOP RECOMMENDATIONS

In a major step towards enhanced regional cooperation for the conservation of dugongs (Sea Cow), India hosted the **First South Asia Sub-Regional Workshop on the Conservation and Management of Dugongs** on 6th and 7th June 2011, in Tuticorin, Tamil Nadu. The Ministry of Environment and Forests, UNEP/CMS Dugong MoU Secretariat and the Wildlife Institute of India jointly organized the workshop. The policy and conservation management experts from India, Pakistan, Sri Lanka and Bangladesh, experts from UNEP/CMS Dugong MoU Secretariat, the Environment Agency – Abu Dhabi, State Forest Departments of Tamil Nadu, Gujrat and Andaman and Nicobar Islands, field officers of the Gulf of Mannar Biosphere Reserve, representatives of the State Fisheries Department, Central Marine Fisheries Research Institute, Wildlife Trust of India, Reefwatch Marine Organization, Wildlife SOS, GEER Foundation, and various other stakeholders attended the workshop.

In his address to the workshop, Minister of Environment and Forests, Jairam Ramesh said: *“I am happy that South Asian Range States are coming together for the conservation and management of this shared and unique marine mammal. In India, we have constituted a Task Force for the conservation of dugongs, in order to have a focused conservation approach. We are committed to addressing the conservation threats faced by the dugong in our waters, and this workshop will take regional and national agendas forward. But as we know, for the most effective kind of conservation, we need the cooperation of all States in the region.”* He also highlighted the involvement of local communities in the conservation of dugongs as of utmost importance for success of the initiative.

Dr. Jagdish Kishwan, Additional Director General of Forests (Wildlife) and Director, Wildlife Preservation, Ministry of Environment and Forests, Chief Guest, said the Ministry was interested in focusing on the marine biodiversity with adequate measures to conserve and protect dugongs and their habitats in this part of the world. Dr. Donna Kwan, Dugong Programme Officer, UNEP/CMS Office - Abu Dhabi, explained the progress made by the dugong range states in signing the MoU for the Conservation and Management of Dugongs and their Habitats throughout their Range, and expressed the hope that the Governments of Bangladesh, Pakistan and Sri Lanka would agree to sign the UNEP/CMS Dugong MoU as early as possible. Shri A.K. Srivastava, Inspector General of Forests (Wildlife), Ministry of Environment and Forests, said that the workshop was expected to take the dugong conservation agenda forward not only in India but in other dugong range states of South Asia also.

### **Recommendations**

Participating South Asian countries and organizations including UNEP/CMS strongly encouraged the Governments of Bangladesh, Pakistan and Sri Lanka to sign the UNEP/CMS Dugong MoU early, and latest before second meeting of the Signatory States;

And decided to:

Develop and deliver a practical and resource-efficient strategy to collaborate in, and implement regional conservation and management initiatives for the conservation of dugongs and their habitats.

Enhance communication among participating countries and organizations including UNEP/CMS so that issues, opportunities and management interventions related to the trans-boundary conservation of dugongs and their habitats can be addressed in a collaborative, effective and timely manner.

Identify individually and collectively, with guidance from UNEP/CMS, the financial and technological resources to support implementation of these recommendations.

## 2 MINISTER'S MESSAGE

जयराम रमेश  
JAIRAM RAMESH



राज्य मंत्री (स्वतंत्र प्रभार)  
पर्यावरण एवं वन  
भारत सरकार  
नई दिल्ली-110003  
MINISTER OF STATE (INDEPENDENT CHARGE)  
ENVIRONMENT & FORESTS  
GOVERNMENT OF INDIA  
NEW DELHI - 110 003

June 2, 2011

### MESSAGE

South Asia has a shared geography with common seascape and a long rich history of social and cultural ties. This region is also home to several diverse natural ecosystems, ranging from the seas and oceans to the mighty Himalayas, harbouring a rich diversity of floral and faunal species including the only existing species of herbivorous marine mammal, the dugong or the 'sea cow'. Dugong lives exclusively in the sea including the Gulf of Mannar, Palk Bay, Gulf of Kutch, and waters of Andaman and Nicobar Islands in India. It is indeed disturbing that the coastal and marine biodiversity including dugong and their habitats in the region are under severe threat due to the anthropogenic pressures. We need to join hands to strengthen regional co-operation among the South Asian countries for conservation of the rich biodiversity including the migratory dugong, as valuable national assets and also as a shared global heritage.

I may mention that the Government of India in the Ministry of Environment and Forests had signed an MoU with CMS-UNEP in April 2008 for conservation and management of Dugongs. The Ministry has also constituted a 'Task Force for Conservation of Dugongs' and included the Dugong under the 'Species Recovery Programme' in its scheme - 'Integrated Development of Wildlife Habitats' for a focused conservation approach.

I am happy to note that the Ministry of Environment and Forests together with the Wildlife Institute of India and UNEP/CMS Office - Abu Dhabi is organizing the First South Asia Sub-regional Workshop on Conservation and Management of Dugongs and their Habitats throughout their Range in the South Asia on 6<sup>th</sup> and 7<sup>th</sup> June 2011 at Tuticorin, Tamil Nadu, India. I was keen to come to Tuticorin and address this important workshop myself. However, at the last moment due to exigency of work, I reluctantly had to miss this opportunity of being with you - the participants from South Asian countries including India. Nevertheless, I hope that the objective of this workshop to support and enhance regional cooperation in preparation and implementation of a Dugong Conservation and Management Plan in the South Asia region under the auspices of the UNEP/CMS Secretariat would be fully met.

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I would like to underline here that proactive cooperation among and commitment of South Asian countries constitute the most essential step forward to institutionalize the collaborative efforts of member nations in conservation of dugong and its habitats in the region. At this occasion, when all dugong range States in the South Asian Sub-region meet for the first time in the Gulf of Mannar Biosphere Reserve, which is the largest habitat of dugong in the region, I would like to thank UNEP/CMS Abu Dhabi Office for sponsoring this workshop, and also the participating countries, *viz*, Pakistan, Bangladesh and Sri Lanka, apart from India for their common vision and commitment to work together to help protect the unique dugong and its habitat across seas in the region. Let me add here a word of caution that such programmes succeed only when these are owned by the local communities. I am hopeful that the current initiative will besides conserving and protecting dugong would simultaneously focus on protecting and enhancing livelihoods of the local communities of South Asia.

I congratulate the participating institutions, agencies, experts, the UNEP/CMS Abu Dhabi Office, Environment Agency – Abu Dhabi, Wildlife Division of the Ministry, Wildlife Institute of India, State Forest Departments of Tamil Nadu and Gujarat, Union Territory of Andaman and Nicobar Islands, District Administration of Tuticorin, GEER Foundation, Reef Watch Marine Conservation and other Civil Society Organizations, Marine Research Foundation, Malaysia and all others who have joined hands in promoting and strengthening regional cooperation to conserve the dugong and its fragile habitats in this region.

I convey my best wishes for a grand success of the workshop.

  
(Jairam Ramesh)

### 3 BACKGROUND

Dugong (*Dugong dugon*) also called as ‘Sea Cow’ is one of the four surviving species in the Order Sirenia and it is the only existing species of herbivorous mammal that lives exclusively in the sea including Indian waters. Dugongs are usually found in calm, sheltered, nutrient-rich waters, generally in bays, shallow islands and reef areas which are protected against strong winds and heavy seas, and which contain extensive seagrass beds. These habitats are still available in Gulf of Mannar, Palk Bay, Gulf of Kutch and Andaman and Nicobar Islands in India. Dugong is considered to be rare over most of its range. Several reasons have been attributed for their population decline, some of which include sea grass habitat loss and degradation, gill netting, diseases, chemical pollutants, indigenous use and hunting. Dugongs are vulnerable to anthropogenic pressures as they are solely dependent on seagrasses in coastal areas which now have been seriously damaged by fishing, dredging, and coastal development. Dugongs have also been hunted for their meat, oil, hide, bones and teeth. However, hunting has been totally banned in several countries including India. Feeding grounds of dugong i.e. seagrass beds can be highly degraded by particular fishing activities including trawling and netting.

In order to conserve and manage dugongs at global level, the 7<sup>th</sup> Conference of Parties of the Convention on Migratory Species (CMS) passed a resolution that urged all dugong range states to cooperate among themselves to develop and adopt a Memorandum of Understanding and an associated Conservation and Management Plan (CMP) for dugongs throughout the species range. In this connection, in October 2007, the CMS Secretariat organized an Intergovernmental Meeting in Abu Dhabi to conclude the Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range (Dugong MoU). The agreement entered into force on 31 October 2007 with the signature of seven range states. Subsequently, with the approval of Union Cabinet, the Government of India signed this Memorandum of Understanding in April 2008 to strengthen the ongoing conservation programme of dugongs and their habitats in the Indian water with the support of international community.

The First Official Signatory State Meeting (SS1) of the Memorandum of Understanding on the Conservation and Management of Dugongs (*Dugong dugon*) and their Habitats throughout their Range was held at Abu Dhabi, United Arab Emirates, 4–6 October 2010. The vision for a ‘Task Force for Conservation of Dugong in India’ was conceived during this meeting. Such a Task Force was considered necessary given that India had the largest population of dugongs in the South Asia sub-region and the significant role it had to play in dugong conservation at global as well as at the South Asia sub-regional level. Among the five sub-regions identified for dugong conservation at global level by the Dugong MoU Secretariat, the conservation status of dugongs in the South Asia sub-region was considered to be of concern and in need of immediate action to prevent further declining of the population and its habitat.

In this background the Ministry of Environment and Forests in the Government of India established a ‘Task Force for Conservation of Dugongs’ to look into the entire gamut of

issues related to conservation of dugongs and implementation of the UNEP/CMS Dugong MoU in India, and also to facilitate India's leading role in the South Asia sub-region with respect to dugong conservation. The Task Force is comprised by the Additional Director General of Forests (Wildlife) as Chairman with the Chief Wildlife Wardens of concerned states having dugongs, Government and Non-Government Organizations and appropriate experts who have been working in the field of dugongs and their habitats' conservation.

In its first meeting, the Task Force took a decision to organise a sub-regional workshop with UNEP/CMS Office - Abu Dhabi, so that members from all countries in the sub-region could meet and take a comprehensive decision on the conservation and monitoring of dugongs and their habitats in the region. In consequence the Ministry of Environment and Forests, Government of India in collaboration with the Wildlife Institute of India and UNEP/CMS Office - Abu Dhabi organized the First South Asia Sub-Regional Workshop of UNEP/CMS Dugong MoU on 6-7 June 2011 in Tuticorin, Tamil Nadu, India. The workshop was expected to bring together the technical and policy participants from South Asia dugong range states i.e. India, Bangladesh, Pakistan and Sri Lanka. The overall objective of this meeting was to support and enhance regional cooperation to implement the Dugong CMP in the South Asia region under the auspices of the UNEP/CMS Secretariat to the Dugong MoU, and also to encourage non-signatory range states to sign the Dugong MoU.

This meeting provided a vital opportunity for the countries to provide updates on the status of their dugong populations and associated habitats, as well as to seek grounds for future collaboration in the field of both research and management. It aimed at helping to develop capacity amongst staffs from collaborating countries to conduct standardised surveys on dugongs; updating information on dugongs and artisanal fisheries; and progressing dugong conservation in the South Asia sub-region. The workshop was funded by the UNEP/CMS Office - Abu Dhabi. The detailed agenda of the workshop can be found in Appendix I.

#### 4 PROCEEDINGS

The workshop was conducted in seven sessions. Each session was chaired by an eminent expert and he/she was supported by one co-chair, one convenor and a repertoire. Details about the session's chairs, co-chairs, convenors and repertoires are provided in Appendix I. Details of the proceedings:

**Mr. A.K. Srivastava**, Inspector General of Forests (Wildlife), Ministry of Environment and Forests, Government of India welcomed all the participants and resource persons and briefed about the background of the workshop. He stressed the importance of conservation of dugongs and their habitats in the South Asian region for their survival as well as for the welfare of people who also depend on the same habitat for their livelihood. He provided an overview on the workshop and highlighted the commitment of the Government of India in conservation of dugongs in the region. Already 20 countries have signed the MoU designed to facilitate national and trans-boundary actions leading to conservation of dugongs and their habitats. The CMP has nine objectives, including reducing mortality; protecting, conserving



and managing habitats; raising awareness; improving legal protection and enhancing regional cooperation. “We have fewer than 200 dugongs, mostly in GoMB and Andaman and Nicobar waters. There are very few in the Gulf of Kutch. Cooperation of neighbouring countries is necessary as the migratory range of the species is long,” said A.K. Srivastava.

**Message of Honourable Minister of State (Independent Charge) for Environment and Forests**, Government of India, was read by Ms. **Prakriti Srivastava**, Deputy Inspector General of Forests (Wildlife), Government of India. In his message for the workshop, Minister of Environment and Forests, **Mr. Jairam Ramesh** said: *“I am happy that South Asian Range States are coming together for the conservation and management of this shared marine mammal. India has constituted a Task Force for the conservation of dugongs, in order to have a focused conservation approach. We are committed to addressing conservation threats faced by the dugong in our waters, and this workshop will take regional and national agendas forward. But as we know, for the most effective kind of conservation, we need the cooperation of all States in the region, as well as the involvement of local communities.”*

**Mr. D. V. Negi**, Principal Chief Conservator of Forests/Chief Wildlife Warden, Government of Andaman and Nicobar Islands, thanked the UNEP/CMS Secretariat and other organisers for this workshop and emphasised the urgent need of initiating the conservation plan for dugongs in the region especially in Andaman and Nicobar Islands. He also shared information on the ongoing conservation efforts in the Andaman and Nicobar Islands and gave his assurance to implement the UNEP/CMS Dugong MoU in the islands.

**Dr. K. Sivakumar**, Scientist, Wildlife Institute of India, explained the objectives of the meeting and formally opened the agenda of the workshop. In his speech, he mentioned that the overall objective of the workshop was to support and enhance regional cooperation to implement the Dugong CMP in the South Asia region under the auspices of the UNEP/CMS Secretariat to the Dugong MOU, and to also encourage non-signatory dugong range states in the region to sign the MOU. He also mentioned that the workshop would provide a vital opportunity for the countries to provide updates on the status of their dugong populations and associated habitats, as well as to seek grounds for future collaboration in the fields of both research and management. The workshop also aimed at helping to develop capacity amongst staffs from collaborating countries to conduct standardised surveys on dugongs; updating information on dugongs and artisanal fisheries; and progressing dugong conservation in the South Asia sub-region.

**Dr. Donna Kwan**, Dugong Programme Officer, UNEP/CMS Dugong MoU Secretariat, provided an overview of the UNEP/CMS Dugong MoU and associated Conservation and Management Plan. In her talk she told about the origin, objective and functioning of UNEP/CMS Office in Abu Dhabi. She also briefly presented the various activities including ongoing activities of the Office. Lastly, she urged non-signatory dugong range states in the region to join the Dugong MoU signatory family to effectively implement the conservation plan to recover the species in the region.

**Dr. Jagdish Kishwan**, Additional Director General of Forests (Wildlife), Ministry of Environment and Forests, Government of India, as the Chief Guest in his inaugural address urged the participants and resource persons to discuss the available conservation tools and management methods and to suggest the actions for conservation of dugongs and their habitats in the region. Dugong is a creature famed and loved as 'mermaid of the sea.' Due to the influence of trawl fishing, blast fishing, increased dredging for shipping industry, discharge of sewage and industrial effluents into seas, and destruction of coral reefs and seagrass beds, the marine biodiversity has been disturbed. Hence, ensuring the survival of dugongs is a formidable task. Tranquillity on the path of development is advisable. In India, dugong has been accorded with highest level of legal protection and classified under Schedule - I of Wildlife Protection Act, 1972. Three areas of the Indian coast — the Gulf of Mannar, the Palk Bay, the Gulf of Kutch and the Andaman and Nicobar Islands — have remnant populations of dugongs.

With appropriate scientific information, further research and education combined with adequate financial resources, this endangered marine species could be conserved. "Memoranda of signing with other countries on conservation and protection of dugong have become essential. More importantly, the involvement of local community is the utmost necessity for safeguarding dugongs, which will face the threat of extinction in the next 40 years. Saving this species is a difficult task but not really impossible", he added. During October 2010, a taskforce for the conservation of dugongs was constituted with the agenda to look into the entire range of issues.

In addition he emphasized the need to conserve the dwindling coastal and marine biodiversity in India as well as in the whole of South Asia region. During his speech he also appreciated the cultural and traditional value of this species in the region which should be carried forward while implementing the conservation plan so that local communities could easily accept the management actions. He also stressed the importance of local communities' involvement in conservation of dugongs in the region, and mentioned issues and challenges in dugong conservation in the human dominated seascape/landscape. At the end he formally declared the workshop opened, wished the participants a successful workshop, and invited Dr. Sivakumar to start the next session.

## **5 COUNTRY REPORTS**

Four range states in the sub-region – Bangladesh, Sri Lanka, Pakistan and India – presented their country reports on dugongs through their respective country representatives.

### **Bangladesh: Mr. Abdullah-Al Mamun and Mr. Mohammad Shah-e-Alam**

In their presentation they mentioned that Bangladesh, having an area of 147,570 sq km, has a great biological diversity. Like many other countries, most sightings of dugongs have been reported as accidental capture in fishing nets or anecdotes from fishermen. However, due to lack of any systematic research, it is difficult to verify the current status of dugongs in Bangladesh. There are reports on the occurrence of dugongs in Bangladesh from the last century or prior. The Chittagong District Gazetteer (1908) states: "The dugong appears to

have been captured on one occasion, more than 20 years ago, off Maheshkhali Island, and has been seen of late years at the mouth of the Matamuhuri River." In 1976, a dead dugong was also detected in the Maheshkhali channel near Cox's Bazar. The current status of dugongs in Bangladesh waters and the extent of their distribution are unknown due to lack of any systematic study. However, the existence of dugongs in other parts of the Bay of Bengal, such as the coasts of Myanmar and Andaman-Nicobar Islands, increases the possibility of dugong's existence in Bangladesh coast. A recent study in Rakhine coastal zone of Myanmar near St. Martin's Island reveals that dugongs currently exist in the waters of Myanmar. This study supports the occurrence of dugongs in Bangladesh waters. However, the abundance of dugongs is yet to be assessed. Reported seagrasses are *Halophila decipiens*, *H. beccarii* and *Halodule uninervis*, *Halodule pinifolia*, and *Ruppia maritima*.

Bangladesh Wildlife (Preservation) Act, 1974, is the only act that can protect the wildlife resources of the country including some of the marine animals like Gangetic Dolphin, Blue Whale, Fin Whale, and Estuarine Crocodile. Unfortunately dugong is not included in the list of protected wildlife, possibly due to the lack of authentic information of their occurrence in the Bangladesh coast. Under the provision of the act, six protected areas (marine-cum-territorial habitat) such as Sundarbans East Wildlife Sanctuary, Sundarbans South Wildlife Sanctuary, Sundarbans West Wildlife Sanctuary, Char Kukri-Mukri Wildlife Sanctuary, Nijhum Dweep National Park and Kuakata National Park have been declared and managed in the coastal areas that mainly encompass the protection of the coastal biodiversity. One Ecologically Critical Area (ECA), St. Martin's Island, is managed for protecting corals and other marine biodiversity. However, these PAs do not give emphasis on the protection of dugongs and their habitats. Conservation initiatives are planned in Bangladesh, which include the following points: (1) Survey should be conducted along the coastline to assess the quantitative data on occurrence and distribution of dugong in Bangladesh; (2) Assessment of the feasibility of one or more Dugong Sanctuaries in which hunting, killing and capturing of dugong and destruction of their habitat will be banned; (3) A culturally appropriate education or training program should be initiated to inform fishers and other members of the coastal communities on aspects of dugong biology, conservation and management; (4) Dugong should be considered as the wildlife and should be included in the second schedule and third schedule of the Bangladesh Wildlife Preservation Act, 1974; (5) If dugong does not exist in Bangladesh waters, they should be declared as locally extinct; (6) Research work should be undertaken in universities and other research organizations to assess the current condition, area and extent of the dugong habitat; (7) Regional co-operation and support is imperative to conserve and manage dugong population and their habitat sustainably.

**Sri Lanka: Dr. W.A. Dharmakeerthi and Mr. Thushan Kapurusinghe**

Mr. Thushan during his presentation mentioned that the population of dugongs in Sri Lanka seems to be continuously declining although there has been no systematic survey conducted on this species. IUCN Sri Lanka Red List has marked dugong as a vulnerable species. The only places where dugongs have been recorded so far in Sri Lanka are the Puttlam lagoon (Kalpitiya) and the Gulf of Mannar on the north western coast of Sri Lanka. According to the current status of dugongs these places are believed to be few of the rare spots where this elusive species is found today. At present, due to the loss of feeding grounds, indiscriminate

fishing practices and hunting for meat and oil resulting as over-exploitation, are leading to the decline of their population in Sri Lanka. Therefore, while considering the low reproductive rate of dugongs, it is uncertain whether a viable population is still surviving in the northwestern waters of Sri Lanka i.e. Pak Bay and Gulf of Mannar Sea. Recently, the Sri Lankan Navy came across two dugong carcasses in fishermen's possession in Mannar. The National Aquatic Resources Research & Development Agency (NARA) was called in for technical assistance and expertise for further investigation. It was suspected that those dugongs were killed as a result of a dynamite blast usually used to catch fish. The Government of Sri Lanka has taken various steps to protect this species and is also planning to carry out dugong surveys and research in the near future.

**Pakistan: Mr. Abrarul Hasan and Mr. M. Hafiz-ur-Rehman**

In their presentation Mr. Hasan and Hafiz-ur-Rehman spoke about various legal frameworks available in Pakistan for protection and conservation of marine biodiversity. Dugongs have never been recorded in the coastal waters of Pakistan, but should be looked out for because of their presence in nearby sea. According to UNEP (2002) there is no known range of dugongs in the coastal waters of Pakistan. However, in an international workshop on the conservation of dugongs, held in Queensland, Australia, it was stated that Pakistan does not provide suitable habitat for dugongs, but individual dugongs may still stray into these waters. Moreover, dugong mortality during fishing activity has never been reported in Pakistan. Mortality of some of the cetaceans, usually black finless porpoise, bottlenose dolphin and Indo-Pacific humpback dolphin, is common on the coast of Pakistan. During a recent survey of Makran coast, 57% fishers had the experience of entangling dolphins in their fishing nets (Hasan 2008), but there was not even a single reporting of dugong entanglement. However, dugong is found in the waters of Gulf of Kachchh and Gulf of Khambhat (India) (Pandy 2004), near Indus delta of Pakistan, and there is a possibility that sometimes stray animals may enter into Pakistan waters. Similar is the case of populations of Persian Gulf which may also enter into Pakistan's western coast. Therefore, a small project focusing on waters around Jiwani and Indus delta may be prepared to find out stray individuals of dugongs who enter Pakistan waters. In conclusion, it was mentioned that a research programme is needed to locate suitable seagrass beds for dugongs in Pakistan. At present no significant sites have been reported.

**India: Dr. K. Sivakumar**

Historically, the dugong distribution in India has been reported as abundant but limited to Andaman and Nicobars Islands, Gulf of Mannar, Palk Bay, Gulf of Kutch, and Lakshadweep Islands. The most favored dugong habitats have been the Gulf of Mannar, Interview Island and several inlets and bays around the Little Nicobar and Great Nicobar. Due to intensive fishing and various developmental activities, the dugong population in the Gulf of Kutch has been pushed at the verge of extinction. Dugong populations in the off-coast of Lakshadweep Islands also seem to be extinct as there have been no recent sightings. Dugongs were common in Andaman & Nicobar Islands during the British era, but steeply declined later due to poaching and habitat destruction. Dugongs are reported in Ritchie's Archipelago, North Reef, Little Andaman, Camorta, Little Nicobar and part of the great Nicobar Islands.

However, large populations are no longer seen and numbers are believed to have been declining since the 1950s. At present, it is assumed that about 250 dugongs may be occurring in four different fragmented populations in India. After the tsunami of 2004, which damaged much of the dugong habitats in the Nicobar regions, further threatened the dugong population here. However, quantitative data on the status of dugongs in India is not available.

The dugongs are protected under the Schedule-I of the Wildlife (Protection) Act, 1972, which provides the maximum protection to a species in the Indian Territory and also prevents any kind of trade on this species. Larger portion of the dugong habitat in India is included in the existing Wildlife Protected Areas Network, for example, Gulf of Mannar Marine National Park, Gulf of Kutch Marine National Park, and M.G. Marine National Park. With the approval of the Union Cabinet, the Government of India has also signed the UNEP/CMS Dugong MoU in April 2008 to strengthen the ongoing conservation programme of dugongs and their habitats in the Indian waters with the support of international community. Since then several programmes to protect and conserve dugongs and their habitats have been initiated in India. The Wildlife Institute of India is already engaged in research on marine biodiversity and could be the lead institution for conservation and management planning for dugongs in India. The Government of India is implementing a Centrally Sponsored Scheme titled 'Integrated Development of Wildlife Habitats'. Under this scheme financial and technical assistance is provided to the State/Union Territory Governments for conservation of wildlife and habitats. One of the components of the scheme is 'Recovery of Critically Endangered Species' and dugong has been identified as one of the 15 species for initiating recovery programmes. India had also established a special task force to oversee entire gamut issues related to conservation of dugongs in India (see Appendix III for more details).

## 6 CONSERVATION STRATEGIES

**Dr. H. S. Das** from the Environment Agency - Abu Dhabi, presented the National Conservation Strategy and Action Plan for dugongs and their habitats: Goals, Actions and Priorities. Before explaining the national conservation plan he urged all participants to stick with the guidelines for Conservation Management Plan prepared by the UNEP/CMS Dugong MoU Secretariat. Range states may prioritize their actions depending upon the need and prevailing threats to dugongs but general framework provided by the UNEP/CMS Secretariat should not be modified at a greater extent. He explained different goals and actions of the National Conservation Strategy and action plan for dugongs and their habitats in India as a case study. In addition he emphasised the importance of prioritisation of actions in each goal as 'immediate' and 'long term'. While prioritizing the actions the impact of delay in implementing those actions should also be taken into consideration. He also stated that detailed research involving satellite tracking, for example, should be given secondary importance as identification of habitats and distribution of dugongs are in first priority.

**Dr. E. Vivekanandan** from Central Marine Research Institute (CMFRI), Chennai, delivered a talk on the 'Status of Dugong in India and Strategies for Conservation'. He reported that the population size in the Gulf of Mannar region ranges from 77 to 158 (~average 100), in

Andaman & Nicobar region from 44 to 81 individuals (~average 60) and in Gulf of Kachchh from 10 to 15 individuals (~average 12). The total probable number of dugong individuals in India is 131 to 254 (~average 172). He highlighted the rapid degradation of population size in the past few decades considering the fact that about 250 dugongs were killed in Gulf of Mannar & Palk Bay between 1974 and 1975 alone. This declining rate was confirmed by the fishermen interview conducted by CMFRI, where about 73% of respondents told that the population is declining. At the end of his talk Dr. Vivekanandan suggested various conservation strategies for conservation and monitoring of dugongs in India. He also emphasized the importance of involving personnel from fisheries sectors in order to obtain a successful dugong conservation programme in India.

## **7 STANDARDISED DUGONG SURVEY METHODOLOGY**

**Dr. Nicolas Pilcher**, Technical Advisor for the UNEP/CMS Dugong MoU Secretariat, handled the technical session of the workshop. During first part of the technical session he introduced the standardised catch/incidental catch questionnaire data form for recording dugong sightings, also explaining various information on the data sheets. On the second part of the technical session he presented different dugong interview survey designs, such as stratified sampling, effort & efficiency, and random selection. Under stratified sampling effort he emphasised the need to balance survey effort in places where we know and where we don't know information related to dugong and their habitats. On the third part of the technical session Dr. Pilcher explained the interview methodology, techniques and data integrity. He stressed the following points on the setting scene: (i) the role of the introductory statement, (ii) ethical approach, (iii) make all interviews equal and (iv) realistic expectations. He also explained the various basic approaches to conduct the dugong interview survey. As a part of the interview survey he also highlighted the importance of maps and identification field guide manuals for marine mammals during survey. At the end of the technical session Dr. Pilcher circulated soft copies of the dugong survey manual and the standardised questionnaire.

Furthermore Dr. Pilcher introduced the Global Dugong Genetics Project to the workshop participants. In his presentation had presented the detailed objectives and methodology of this study. He also distributed a genetic sample collection kit to each range state representatives.

The entire technical session was very interactive and participants raised several questions related to dugong survey methodology, analysis and interpretation of results. Dr. Pilcher convincingly and clearly answered all questions.

## **8 STATE REPORTS**

**Ms. Elrika**, **Mr. R.D. Kamboj** and **Dr. Shekar Niraj** presented the state conservation reports of dugongs of Andaman and Nicobar Islands, Gujarat and Tamil Nadu respectively. Ms. Elrika presented her ongoing research activities aimed to study the behaviour and habitat

ecology of dugongs in Andaman and Nicobar Islands. Mr. Kamboj explained the present status and distribution of dugongs in the Gulf of Kutch region and also told about the details of all associated dugong flora and fauna in the Gulf of Kutch. He informed that about 10-15 dugongs are likely to occur in Gujarat coast. He informed participants about various conservation measures initiated in the state regarding management of dugongs and their habitats and requested the Government of India to provide technical support to strengthen the conservation plan in the state. Finally, Dr. Niraj briefed about all ongoing conservation actions in the state of Tamil Nadu especially in the Gulf of Mannar Biosphere Reserve regarding the management of dugongs and their habitats in this region. He also mentioned that dugong is the flagship species in the Gulf of Mannar as per the conservation plan.

**Dr. Ketan Tatu**, GEER Foundation, Gujarat presented a study report on dugongs, conducted for Ministry of Environment and Forests, Government of India. Dr. Tatu explained details of objectives and methodology adopted in this study. The study adopted more or less similar interview-based methodology proposed by the UNEP/CMS Dugong MoU Secretariat. This study estimated that there are about 250 dugongs in India but in three different populations. Dugong population in the Gulf of Mannar assumed to be the largest followed by Andaman and Nicobar Islands and the Gulf of Kutch. Threats and conservation perspectives of dugongs and their habitats in India were also detailed in his talk.

**Mr. Hasmukh Hoslo Jiwa**, Greenlife Society, Andaman and Nicobar Islands presented the required conservation actions, mostly similar to the Dugong MoU, for the management of dugong and their habitats in the region. He also emphasised the importance to involve local communities in the conservation programme in order for it to be successful.

**Field Visit coordinated by Dr. Shekhar Kumar Niraj**, Director, Gulf of Mannar Marine Biosphere Reserve: all participants visited the Van Island, one of the islands of protected Biosphere Reserve. Sea around Van Island is known to be the habitat of dugong but due to nearby developmental activities the habitat has been drastically deteriorated and sightings of dugong in this sea have become rare. Dr. Niraj explained to participants about various management issues related to dugongs and their habitats in the Gulf of Mannar during this visit.

## **9 FROM UNEP/CMS DUGONG MOU SECRETARIAT**

**Dr. Donna Kwan** explained the technical resources required/available to support the dugong range states to successfully implement the Conservation Management Plan for Dugongs and their Habitats prepared by the Dugong MoU Secretariat in a detailed manner. She also spoke about in-country dugong surveys and planning assistance under Small Scale Funding Programme. Dr. Kwan invited the range states to submit proposals in this regard to the Secretariat as soon as possible. In addition she mentioned that Dr. Pilcher would help the range states to prepare their proposals and carry out surveys in their respective countries. India has already committed to carry out the survey using its own funding resources.

## 10 WORKSHOP CONCLUSION

Dr. Sivakumar coordinated the conclusion session and all participants of the workshop agreed with the following recommendations:

*Participating South Asian countries and organizations, including UNEP/CMS, strongly encourage the Governments of Bangladesh, Pakistan and Sri Lanka to sign the UNEP/CMS Dugong MoU early, and latest before second meeting of the Signatory States;*

*And decide to:*

*Develop and deliver a practical and resource-efficient strategy to collaborate in, and implement regional conservation and management initiatives for the conservation of dugongs and their habitats.*

*Enhance communication among participating countries and organizations including UNEP/CMS so that issues, opportunities and management interventions related to the trans-boundary conservation of dugongs and their habitats can be addressed in a collaborative, effective and timely manner.*

*Identify individually and collectively with guidance from UNEP/CMS, the financial and technological resources to support implementation of these recommendations.*

In the end of the meeting/workshop, Dr. Niraj provided the vote of thanks to the organisers, participants and press.



## Appendix I: Workshop Agenda

### First South Asia Sub-regional Workshop of UNEP/CMS Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range in the South Asia

**6-7 June 2011, Tuticorin, India**

<b>Day 1 (Monday, 6 June 2011) Inauguration</b>		
09.00 - 10.00	<b>Registration</b>	
10.00 - 10.10	Welcome Address	Mr A. K. Srivastava, Inspector General of Forests (WL), Ministry of Environment and Forests
10.10 - 10.15	Message of Honourable Minister of State (Independent Charge) for Environment and Forests	To be read by Ms. Prakriti Srivastava, Deputy Inspector General of Forests (WL), Ministry of Environment and Forests
10.15 - 10.25	Address	Mr D. V. Negi, PCCF/Chief Wildlife Warden, Government of Andaman and Nicobar Islands
10.25 -10.35	Workshop Objectives and Agenda Opening Statement	Dr K. Sivakumar, Wildlife Institute of India
10.35 -10.45	Overview of the UNEP/CMS Dugong MoU and Conservation and Management Plan	Dr Donna Kwan, UNEP/CMS
10.45 -10.55	Inaugural Address	Dr Jagdish Kishwan, Additional Director General of Forests (Wildlife) and Director, Wildlife Preservation, Government of India, Ministry of Environment and Forests
10.55 -11.00	Vote of Thanks	Dr K. Sivakumar, Wildlife Institute of India
<b>11.00 - 11.30</b>	<b>Tea</b>	
<b>Session I: Country Reports</b> <b>Chair: Mr. Abrar ul Hasan, Pakistan</b> <b>Co-Chair: Dr. W.A.D. Ananda Dharmakeerthi, Sri Lanka</b> <b>Convenor: Mr. Abdullah Al Mamum, Bangladesh</b> <b>Repertoire: Dr. J. A. Jhonson, WII</b>		
11.30 - 11.45	Overview of population status, conservation and management of dugong and their habitats in the	Representative from Bangladesh
11.45 - 12.00 noon		Representative from Sri Lanka

12.00 - 12.15	respective countries	Representative from Pakistan
12.15 - 12.30		Representative from India
<b>Session II: Conservation Strategy</b> <b>Chair: Md. Shah-E-Alam, Bangladesh</b> <b>Co-Chair: Mr. Thushan Kapurusinghe, Sri Lanka</b> <b>Convenor: Mr. Md. Hafiz-ur-Rehman, Pakistan</b> <b>Repertoire: Mr. Hasmukh, A&amp;N Islands/Gujarat</b>		
12.30 - 12.45	National Conservation Strategy and Action Plan for dugongs and their habitats: Goals, Actions and Priorities	Dr. H.S. Das, National Environment Agency, UAE, Abu Dhabi
12.45 - 13.00	Status of dugong in the country and strategies for its conservation	Presentation by Dr. E. Vivekanandan, Principal Scientist, Chennai Research Center, Central Marine Fisheries Research Institute (CMFRI)
<b>13.00 - 14.00</b>	<b>Lunch</b>	
<b>Session III: Survey Methodology Part I</b> <b>Chair: Dr. W.A. Dharmakeerthi, Sri Lanka</b> <b>Co-Chair: Mr. Md. Shah-E-Alam, Bangladesh</b> <b>Convenor: Dr. H.S. Das, Environment Agency, UAE</b> <b>Repertoire: Ms. Meetu Gupta, Wildlife SOS</b>		
14.00 - 15.30	1. Introduction to Standard Dugong Methodology 2. Dugong Survey Questionnaire 3. Processing and presenting data: quantitative & qualitative	Dr. Nicolas Pilcher, Director, Marine Research Foundation, Malaysia
<b>15.30 - 16.00</b>	<b>Tea</b>	
<b>Session IV: Survey Methodology Part II</b> <b>Chair: Mr. R.D. Kamboj, Gujarat</b> <b>Co-Chair: Dr. Rahul Kaul, WTI</b> <b>Convenor: Dr. Patterson Edward, SDMRI</b> <b>Repertoire: Mr. Sundarakumar, GOMNP</b>		
16.00 -16.30	Creation of maps: overlaying habitat, distribution and threat data	Dr. Nicolas Pilcher
16.30 -17.00	Discussion	Dr. Donna Kwan, Dr Nicolas Pilcher, Dr H.S. Das
19.30	Reception Hosted by Dr. Jagdish Kishwan, Addl. Director General of Forests (Wildlife), Ministry of Environment and Forests, Government of India Dinner Hosted by Mr. Gautam Dey, Principal Chief Conservator Forests, Government of Tamil Nadu	

<b>Day 2 (Tuesday, 7 June 2011)</b>		
07.00 -11.30	Field Visit to Gulf of Mannar National Park	Dr. Shekhar Kumar Niraj, Director, Gulf of Mannar Marine Biosphere Reserve (GOMMBR)
<b>Session V: State Reports</b> <b>Chair: Ms. Mitali Dutt Karkar, Reefwatch</b> <b>Co-Chair: Dr. H.S. Das, UAE</b> <b>Convenor: Dr. Shekar Niraj, GOMBR</b> <b>Repertoire: Dr. Senthilkumar, GOMNP</b>		
12.00 - 12.15	Presentation of the comprehensive conservation plan for Dugong and their habitat in the respective States: Salient features of the conservation plan and present status of implementation	Presentation by Mr. D. V. Negi, PCCF/Chief Wildlife Warden, Andaman and Nicobar Islands
12.15 – 12.30		Presentation by Mr. S. K. Goyal, PCCF/Chief Wildlife Warden /Shri R.D. Kamboj, CCF, Marine National Park, Jamnagar, Gujarat
12.30 - 12.45		Presentation by Mr. Gautam Dey, PCCF/Chief Wildlife Warden, Tamil Nadu or his representative
<b>13.00 - 14.00</b>	<b>Lunch</b>	
<b>Session VI: Mixed Bag</b> <b>Chair: Dr. Nicolas Pilcher, MRF, Malaysia</b> <b>Co-Chair: Dr E. Vivekanandan, (CMFRI)</b> <b>Repertoire: Dr. Deepak S, GOMBRT</b>		
14.00 - 14.30	Study report on Dugongs, conducted for Ministry of Environment and Forests by GEER Foundation	Presentation by Dr. Ketan Tatu, GEER Foundation)
14.30 - 15.00	Technical resources required/ available to support projects	Dr. Donna Kwan
15.00 - 15.30	In-country dugong surveys (to be funded by this project) Planning Assistance	Dr. Donna Kwan
<b>15.30 - 16.00 pm</b>	<b>Tea</b>	
<b>Session VII: Conclusion</b>		
16.00 - 16.30 pm	Workshop Recommendations, Interaction and Feedback	Dr. Donna Kwan, Ms. Prakriti Srivastava, Dr. Shekhar Niraj, Dr. Sivakumar
16.30 - 17.00 pm	Closing remarks and vote of thanks	Dr. K. Sivakumar, Dr. Donna Kwan, Ms. Prakriti Srivastava, DIG(WL), Dr Shekhar Niraj

## Appendix II: Participants & Resource Persons

	Name	Address
1	Dr. Jagdish Kishwan	Additional Director General of Forests(WL), Paryavaran Bhava Ministry of Environment & Forests, CGO Complex New Delhi- 110003.
2	Mr. A.K. Srivastava,	Inspector General of Forests(WL), Paryavaran Bhava Ministry of Environment & Forests, CGO Complex New Delhi- 110003.
3	Ms. Prakriti Srivastava,	Deputy Inspector General of Forests(WL), Room 514, Paryavaran Bhava Ministry of Environment & Forests, CGO Complex New Delhi- 110003. Mob: 09499163337 Email: <a href="mailto:digwl-mef@nic.in">digwl-mef@nic.in</a>
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5	Dr. J.A. Johnson	Scientist Wildlife Institute of India P.O. Box 18, Chandrabani, Dehradun, India
6	Dr. Donna Kwan	Programme Officer – Dugongs UNEP/CMS Office C/o Environment Agency-Abu Dhabi P.O. Box 45553 ABU DHABI United Arab Emirates
7	Dr. Nicolas Pilcher	Executive Director Marine Research Foundation 136 Lorong Pokok Seraya 2, Taman Khidmat 88450 KOTA KINABALU Malaysia <a href="mailto:nvilcher@mrf-asia.org">nvilcher@mrf-asia.org</a>
8	Dr. H.S. Das,	Dugong Expert, Environment Agency, Abu Dhabi, United Arab Emirates
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<b>17</b>	Dr. E Vivekanandan	Principal Scientist & Scientist-in-Charge Madras Research Centre of CMFRI
<b>18</b>	Ms. Mitali Dutt	Reef Watch Marine Conservation

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19	Mr. D.V. Negi	Chief Wildlife Warden, Government of Andaman and Nicobar Islands
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21	M. Sundarakumar	Wildlife Warden, Gulf of Mannar NP
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23	Dr. Patterson	Director, SDMRI, Tuticorin
24	Mr. Malleshappa	Director, KMTR, Government of Tamil Nadu
25	Mr. Uppreti	Conservator of Forests, Tirunelvely, Government of Tamil Nadu
26	Mr. Pradeep Kumar	Assistant Director, Tamil Nadu Fisheries Department, Tuticorin
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32	R. Senthil kumar	GOMNP, Ramanathapuram, Tamil Nadu
33	T. Rajendiran	ACF, GOMNP, Tuticorin
34	Nagarajan	FRO, GOMNP, Tuticorin

## Appendix III: Country Reports

### Country Position Paper: Conservation of Dugong in India

#### 1. Introduction:

1.1 **Dugong** (*Dugong dugong*) also called as ‘**Sea Cow**’ is one of the four surviving species in the Order Sirenia and it is the only existing species of **herbivorous mammal that lives exclusively in the sea including in India. It is a large primary consumer and has considerable potential as a source of protein.** Dugongs occur along the coast from East Africa to the Red Sea, southern Asia to the Solomon Islands, and along the northern coasts of Australia from southern Queensland to subtropical Western Australia.

1.2. **Dugongs are usually found in calm sheltered, nutrient-rich waters** less than five meters deep, generally in bays, shallow island and reef areas which are protected against strong winds and heavy seas, and **which contain extensive sea grass beds. These habitats are still available in Gulf of Mannar, Palk Bay, Gulf of Kutch and Andaman and Nicobar Islands in India.** However, they are not confined to only inshore water. There have been sightings near reefs up to 80 km offshore in waters up to 37 meters deep. Studies have suggested that there is a correlation between the abundance of seagrass and dugongs.

1.3 Dugong is considered to be rare over most of its range. **Human exploitation has led to extermination of the species** in several previously inhabited archipelagoes, including Mascarene, Laccadive, Maldives, Barren, Narcondam, Cocos and Christmas Islands around the rim of the Indian Ocean, and Lesser Sunda Islands in Indonesia east of Java. The species is listed as vulnerable to extinction at a global scale. However, dugongs are still abundant in the shallow seas around tropical Australia, and it is likely that Australia may contain the main reservoir of dugongs in the world, followed by the coast of United Arab Emirates.

#### 2. Historical distribution of dugong in India:

2.1. Historically, the dugong distribution in India was reported as abundant but limited to Andaman and Nicobars Islands, Gulf of Mannar, Palk Bay, Gulf of Kutch, and Lakshadweep Islands. The most favored dugong habitats were the Gulf of Mannar, Interview Island and several inlets and bays around the Little Nicobar and Great Nicobar. In the Gulf of Mannar, about 250 dugongs were illegally caught and butchered at the villages of Kilakarei and Peripattinum alone between April 1983 and August 1984. This information clearly shows that once, the Gulf of Mannar had a good population of dugongs, but illegal take of this species let the population under threat. However, it has been concluded that Palk Strait and the Gulf of Mannar should be important areas for dugongs in India. As per assessment of UNDP, the dugong population in the Gulf of Mannar has almost completely depleted.

2.2. There were sporadic records of dugongs in the west coast of peninsular India. However, the only known dugong population remained in western India was in the Gulf of Kutch. **Due to intensive fishing and various coastal development activities, the dugong population in the Gulf of Kutch has been pushed at the verge of extinction.** Dugong

populations in the off-coast of Lakshadweep Islands also seem to be extinct as there has been no recent sighting of this species in the region.

2.3. Dugongs were common in Andaman & Nicobar Islands during the British era, but populations steeply declined later due to poaching and habitat destruction. Dugongs are reported in Ritchie's Archipelago, North Reef, Little Andaman, Camorta, Little Nicobar and in part of the great Nicobar Islands. However, large populations are no longer seen and numbers are believed to have been declining since the 1950s.

### **3. Current status and distribution of dugong in India:**

3.1. Dugongs continue to occur in Gulf of Mannar and Palk Bay, and in Gulf of Kutch. Dugong also occurs in Andaman and Nicobar Islands. Ministry of Environment and Forests, Government of India, with the help of GEER Foundation, Gujarat, has recently carried out an interview-based survey on dugong populations at the national level. Also observations made by the Central Marine Fisheries Research Institute and various other organizations in India have revealed that the dugong populations all over India are declining. At present, it seems that the largest population of dugongs in India is in Gulf of Mannar and Palk Bay region followed by Andaman and Nicobar Islands, although the population size is presumed to be very small. Dugong population in Gulf of Kutch is already being critically endangered. After the tsunami of 2004, which damaged much of the dugong habitats in the Nicobar regions, further threatened the dugong population here. However, quantitative data on status of dugongs in India is not available.

### **4. Major Threats:**

4.1 **Several reasons have been attributed for the dugong population decline, some of which include vessel strikes, habitat loss and degradation, disease, chemical pollutants, indigenous use and hunting, and incidental drowning in nets.** Dugongs are vulnerable to **anthropogenic pressures** as they are solely dependent on seagrasses in coastal areas which now have been seriously damaged by **fishing, trawling, and dredging**. Dugongs have also been hunted for their meat, oil, hide, bones and teeth. However, hunting has been totally banned in several countries including India.

4.2. **Feeding grounds of dugongs i.e. seagrass beds are highly degraded due to change in the fishing technology.** Traditionally, fishermen used non-mechanized boats for fishing in the shallow water especially seagrass beds. However, the modernization of fishing technology **that gradually replaced this traditional crafts to mechanized crafts** has never been friendly with seagrass beds and degraded the habitats swiftly. Moreover, water pollution and siltation have also hampered this unique dugong habitat. Although dugong is getting the highest level of protection by law, there are still reports of incidental dugong catch while fishing.



## 5. Ongoing Conservation Measures:

5.1. Dugongs are protected under the **Schedule-I of the Wildlife (Protection) Act, 1972**, which provides the maximum protection to a species in the Indian Territory and also prevents any kind of trade on this species.

5.2. Dugong populations across the world are also declared as **Vulnerable by IUCN** and listed in **Appendix-I of CITES**, which prevent international trade on this species. Being a signatory, the Government of India strictly adhere to the CITES rules and regulations to prevent trade on protected endangered species including dugong.

5.3. **Larger portion of the dugong habitats in India have been included in the existing Wildlife Protected Areas Network, for example Gulf of Mannar Marine National Park, Gulf of Kutch Marine National Park, and M.G. Marine National Park.** A study carried out during 2004 also revealed that the incidental catch of dugongs by fishermen is significantly lower in Indian part of Gulf of Mannar than in Sri Lankan part. This is due to joint efforts of the Government of India and Tamil Nadu Forest Department who have raised awareness among people about this species.

5.4. In order to conserve and manage dugongs, the **7<sup>th</sup> meeting of the Conference of Parties of the Convention on Migratory Species (CMS)** passed a resolution and urged all dugong range states to cooperate among themselves to develop and adopt a **Memorandum of Understanding (MoU)** and an associated Conservation and Management Plan (CMP) for dugongs throughout the species range. Two meetings under the auspices of CMS were convened at Bangkok during August 2005 and May 2006 to finalize the Memorandum of Understanding and the Conservation and Management Plan for the Conservation and Management of Dugongs and their Habitat throughout their Range.

During the First Official Signatory State Meeting in October 2010, the UNEP/CMS Dugong MoU Secretariat sought the advice of Signatory States on the need for sub-regional groupings. Five sub-regions viz. South West Indian Ocean, North West Indian Ocean, South Asia, South East Asia and the Pacific sub-regions were identified. Of these, Bangladesh, India, Maldives, Pakistan, and Sri Lanka fall in the South Asia sub-region, with India having the largest habitat for dugongs with perhaps the highest population in this region. India may therefore volunteer to lead the South Asia sub-region in implementing the recommendations of the Dugong MoU in the region by developing a comprehensive proposal for survey, assessment and conservation of dugongs in active collaboration with UNEP/CMS, Signatory States, particularly South Asian nations, concerned research and academic institutions, State/UT Governments, NGOs and the local communities, particularly the fishermen. The Wildlife Institute of India is already engaged in research on marine biodiversity and could be the lead institution for conservation and management planning for dugongs.

5.5 **With the approval of Union Cabinet**, the Government of **India has also signed the Memorandum of Understanding** on the Conservation and Management of Dugongs and their Habitats throughout their Range in April 2008 to strengthen the ongoing conservation

programme of dugongs and their habitats in the Indian waters with the support of international community. Since then the ongoing protection and management of dugongs and their habitats has been strengthened with the following actions;

5.5.1 Identified populations of dugongs in Gulf of Mannar, Gulf of Kutch and in Andaman & Nicobar Islands have been under strict protection to reduce the direct and indirect causes of dugong mortality. Various conservation awareness programmes targeting fishermen communities of these regions have been initiated to minimise the mortality of dugongs due to fishing. Surveys have also been initiated to assess the population status of dugongs in India. However, combination of different survey techniques including aerial surveys would soon need to be carried out to find out the status of dugong populations as well as their habitats. Necessary steps to restore the degraded grasslands in the Gulf of Mannar have already been initiated and the same kind of initiative would be followed in other regions where seagrasses are degraded due to various anthropogenic activities. In this context, technical support would be sought from international agencies.

5.5.2 A study to understand the dugong ecology and behavior along with various aspects of their habitat has been undertaken by Reef Watch in the Andaman and Nicobar Islands. **Similar kind of study needs to be initiated at national level to assess and monitor the ecology and habitat of dugong in Gulf of Mannar, Palk Bay and Gulf of Kutch.** The Government of India is examining the possibility of initiating a study through Wildlife Institute of India, Dehradun, on satellite tracking of dugongs in Gulf of Mannar and Palk Bay to understand their trans-boundary movements along with aerial surveys, which are also a priority.

5.5.3 Considerable area of dugong habitat is under protection as these areas have already been declared as Wildlife Protected Areas. However, some more areas have been identified by the Wildlife Institute of India as potential dugong habitats which need to be brought under the Wildlife Protected Area Network with the participation of local communities.

5.5.4 Government of India is implementing a Centrally Sponsored Scheme titled **‘Integrated Development of Wildlife Habitats’**. Under this Scheme financial and technical assistance is provided to the State/Union Territory Governments for conservation of wildlife and their habitats. One of the components of the scheme is **‘Recovery of Critically Endangered Species’** and the dugong has been identified as one of the 15 species for initiating recovery programmes.

## **6. India’s Plan of Action**

**6.1. *The Ministry of Environment and Forests in the Government of India would constitute a ‘Task Force for Conservation of Dugongs’ to look into the entire gamut of issues related to conservation of dugongs and implementation of the UNEP/CMS Dugong MoU in India.***

*6.2. We recognise the urgent necessity of carrying out a detailed study to understand the status and extent of dugong in India along with status of their habitats. In this connection, combination of aerial surveys with interview-based techniques would be used to estimate the dugong populations.*

*6.3 We feel it necessary to identify other important and potential dugong habitats in India to bring them under the Protected Area Network for better conservation planning, involving various stakeholders viz. policy makers, protected area managers, researchers, NGOS, local community representatives and the fishermen.*

*6.4 Awareness programmes focussing on dugong conservation will be strengthened to reach the target communities.*

*6.5 Ministry of Environment and Forests will look into the matters related to providing financial & technical support to the concerned federal states of India for taking up conservation activities for dugongs and their habitats.*

*6.6 India proposes to organise South Asia sub-regional workshop at the Wildlife Institute of India, Dehradun, involving Bangladesh, Pakistan, Sri Lanka and Maldives, for which support of UNEP/CMS Secretariat would be sought under the Small Grant Programme.*

*6.7 India proposes to carry out a joint survey on extent and distribution of dugongs in Gulf of Kutch with Pakistan and in Gulf of Mannar with Sri Lank under UNEP/CMS Small Grant Programme. India will also carry out survey and assessment of dugongs in Andaman & Nicobar Islands.*

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## Country Report: Bangladesh

### Overview of the population status, conservation and management of dugong and their habitats in Bangladesh

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### Background

The dugong (*Dugong dugon*) is found in shallow and coastal island waters of at least 37 countries in the Indo-Pacific region, and was historically distributed around the region's marine habitat (Marsh and Lefebvre 1994). Researchers believe that dugongs are locally extinct in many countries (Marsh *et al.* 2002) and its population declines to 20% in the last 90 years. It is listed as 'vulnerable to extinction' on the IUCN Red List due to population declines, habitat loss/degradation, and human exploitation (Hines *et al.* 2008). Though Bangladesh was not listed (Marsh and Lefebvre 1994, Marsh *et al.* 2002) as a part of the dugong range, various reports suggest that dugongs occur in Bangladesh waters in sparse numbers. List of mammals of Bangladesh includes dugong as a vulnerable species (Wikipedia 2011). Like many other countries, most sightings of dugongs have been reported as accidental capture or anecdotes from fishermen. However, due to lack of any systematic research, it is difficult to verify the current status of dugongs in Bangladesh.

Bangladesh, having an area of 147,570 sq km, has a great biological diversity in such an unusually overpopulated (130 million with more than 800 people per sq km) country with a very limited range of habitats. Bangladesh coast, facing the Bay of Bengal in the South is 710 km long, stretching from south-west corner of the Sundarbans Mangrove Forest to St. Martin's Island (Figure- 2). Most of these coastal areas are deltaic having muddy to sandy soil, and much dissected by water courses and large and small islands. Patches of stones and boulders occur only in the south-eastern part of the coast, while the St. Martin's Island is surrounded by boulders and is regarded as "Coral Island". The Bangladesh Exclusive Economic Zone in the Bay of Bengal spans an area of 166,000 sq. km which is an artisanal fishing ground; though fishing is limited by environmental factors to an area of about 14,000 sq. km (Khan *et al.* 2003). In 1996-97 the annual fish production was 274,704 tons of fish, 95% of which was caught by coastal artisanal fisheries (Khan *et al.* 2003).

Like many other countries, most sightings of dugongs were reported as accidental capture in fishing nets or anecdotes from fishermen. Due to lack of any systematic research, it is difficult to verify the current status of dugong in Bangladesh. This country report describes the existence of dugong and availability of their habitat in Bangladesh, and suggests some initiatives and legislative measures for conservation and management of dugongs and their habitats.

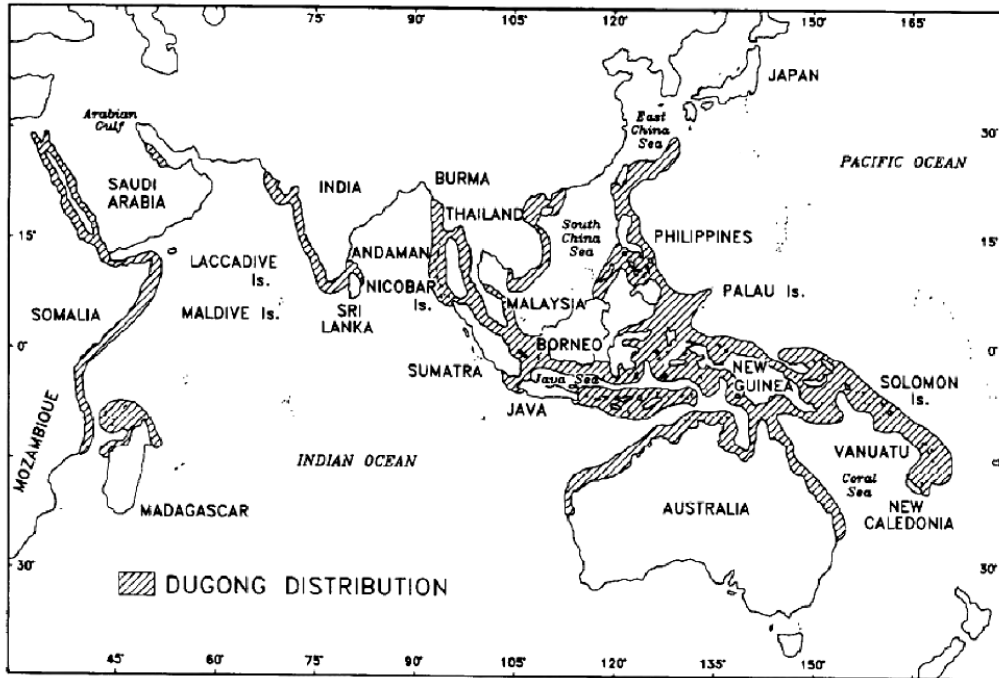


Figure-1: Distribution of dugongs in the Indo-pacific (Marsh and Lefebvre 1994)

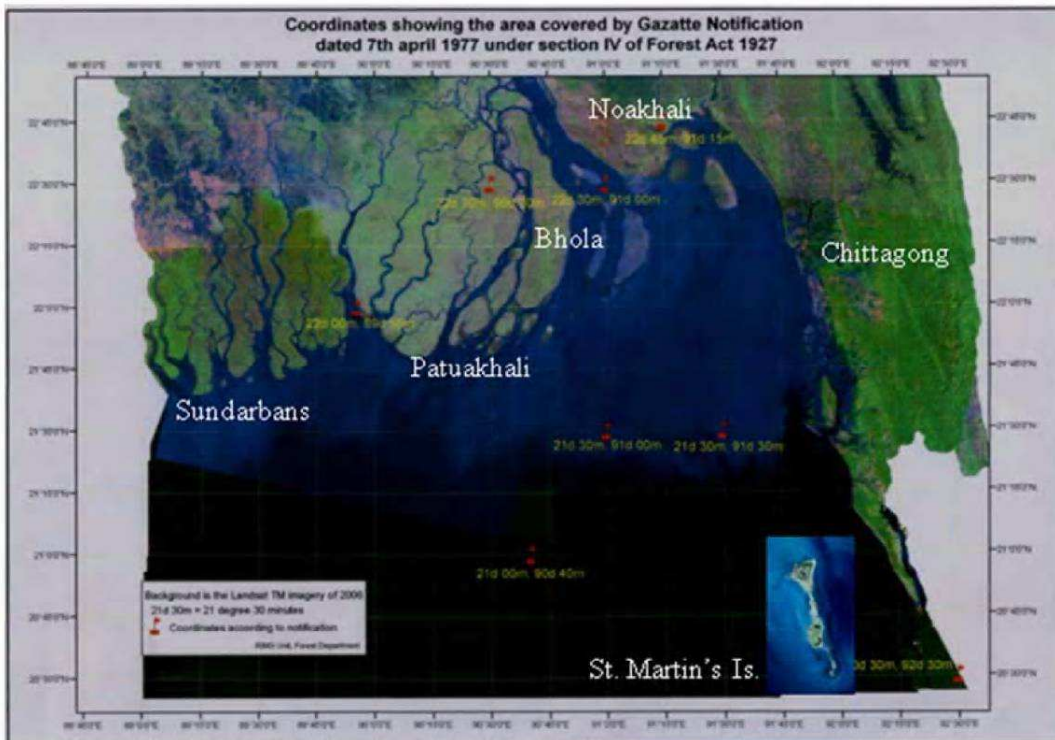


Figure-2: Map showing Bangladesh Coasts

## Distribution and abundance of dugongs

There are reports on the occurrence of the dugong in Bangladesh in the last century or prior. The Chittagong District Gazetteer (1908) states: "The dugong appears to have been captured on one occasion, more than 20 years ago, off Maheshkhali Island, and has been seen of late years at the mouth of the Matamuhuri River." In 1976, a dead dugong was also detected in the Maheshkhali channel near Cox's Bazar (Figure-2).

The current status of dugongs in Bangladesh waters and the extent of their distribution are unknown due to lack of any systematic study. Studies or inventories regarding distribution and abundance are rare. However, the occurrence of dugongs in other parts of the Bay of Bengal, such as coasts of Myanmar and Andaman-Nicobar Islands, increases the possibility of dugong's existence in Bangladesh coast. A recent study in Rakhine coastal zone of Myanmar near St. Martin's Island reveals that dugong currently exists in the waters of Myanmar (Tun and Ilangakoon, 2009). This study supports the occurrence of dugong in Bangladesh waters. However, the abundance of dugong is yet to be assessed.

## Distribution of key seagrass and other dugong habitats

Very little study has been done on the distribution of seagrasses in Bangladesh. Studies are limited to identification of seagrasses from different parts of the coast. Information on seagrass beds is lacking (Kamal and Khan, 2009). Islam and Aziz (1980) reported only two seagrass (*Halophila decipiens*, *Halodule uninervis*) available in St. Martin's Island. However, according to another report, so far five types of seagrasses are identified from coastal and estuarine areas of Bangladesh (Kamal and Khan, 2009). Reported seagrasses are *Halophila decipiens*, *H. beccarii* and *Halodule uninervis*, *Halodule pinifolia*, *Ruppia maritima* (Table-1).

Table-1: Reported Seagrasses in Bangladesh coast

Family	Seagrass Species	Location
Hydrocharitaceae	<i>Halophila decipiens</i>	St. Martin's Island
	<i>Halophila beccarii</i>	
Cymodoceaceae	<i>Halodule uninervis</i>	St. Martin's Island
	<i>Halodule pinifolia</i>	
	<i>Ruppia maritima</i>	

(Source: Kamal and Khan, 2009)

Dugong is the only strictly herbivorous marine mammal. They are heavily dependent on the seagrasses for subsistence and are thus restricted to the coastal habitat. Seagrass of the family *Potamogetonaceae*, *Hydrocharitaceae* and *Cymodoceaceae* are the key source of food for the dugong. Seagrasses of the two key families are available in Bangladesh.

Large dugong communities are seen to concentrate on wide, shallow and protected areas such as bays, mangrove channels and the lee sides of large inshore islands where there are seagrass beds. Bangladesh is blessed with world's largest single-tract mangrove forest, Sundarbans, with numerous creeks and channels and a number of islands like St. Martin's, Moheshkhali, Kutuddia, Sandweep, Hatia, and Bhola. Survey is yet to be done in the area to identify and assess the area and extent of the potential seagrass habitats.

### **Legislative support for protection of dugong and their habitat**

The IUCN Red List marks the dugong as vulnerable and the Convention on International Trade in Endangered Species of Wild Fauna and Flora regulates and in some countries has banned international trade. Bangladesh Wildlife (Preservation) Act, 1974, is the only act that can protect the wildlife resources of the country including some of the marine animals such as Gangetic Dolphin, Blue Whale, Fin Whale, and Estuarine Crocodile. Unfortunately dugong is not included in the list of protected wildlife, possibly because of the lack of authentic information of their occurrence in the Bangladesh coast. Being a threatened as well as protected wildlife in the neighbouring countries like Myanmar, dugong should at least be included in the second schedule of the Bangladesh Wildlife (Preservation) Act, 1974, which protect possession or import of meat or oil in the country. Moreover, studies should be undertaken to explore the current occurrence of dugong in the Bangladesh coast and to assess their habitat. If they occur, they should be included in the third schedule of the act which prohibits hunting, killing or capturing (Table-2).

Table-2: Legal Provision for protecting marine mammals in Bangladesh

Name of the Schedule	Part No.	Listed No. of Wildlives	Legal provision	No. of Marine Mammals protected
First Schedule	Part -I	36 Crustaceans, Amphibians, Reptiles Birds and Mammals,	Open to shooting and may be hunted on an ordinary game hunting permit	0
	Part -II	Mammals, Reptiles and Birds	Hunting requires a special permit	not specified
Second Schedule	-	Any protected animals	Possession or import of any trophy or meat, horns, tusks and skins requires a certificate of lawful possession	All protected marine mammals in the third schedule
Third Schedule	-	545	Animals not allowed to be hunted, killed or captured	Gangetic Dolphin, Common Dolphin, Blue Whale, Fin Whale and Estuarine Crocodile, Turtle

Under the provision of the act, six protected areas (marine-cum-territorial habitat) such as Sundarbans East Wildlife Sanctuary, Sundarbans South Wildlife Sanctuary, Sundarbans West Wildlife Sanctuary, Char Kukri-Mukri Wildlife Sanctuary, Nijhum Dweep National Park and Kuakata National Park, have been declared and managed in the coastal areas that mainly encompass the protection of the coastal biodiversity. One Ecologically Critical Area (ECA), St. Martin's Island, is managed for protecting corals and other marine biodiversity. But these PAs do not give emphasis on the protection of dugongs and their habitats.

### **Nature and magnitude of threats to dugongs**

The detection of dugongs in the eastern coastal region long ago was dead specimen. This strongly supports that the Bangladesh waters are not safe for its movement due mainly to fishing nets. However, any dugong killing or capturing has not been reported. Unintentional killing during fishing in the shallow water and near shore may happen. No dugong meat or oil is yet observed in the market, but an exploration study may authentically verify the observation. Accidental bycatch in the fishing nets is also a possible threat to the dugong population.

### **Proposed future research and / or conservation action**

Initiatives should be taken to conserve dugongs and their habitat in Bangladesh which include: (1) Survey should be conducted along the coastline to assess the quantitative data on occurrence and distribution of dugong in Bangladesh; (2) Assessment of the feasibility of one or more dugong sanctuaries in which hunting, killing and capturing of dugong and destruction of their habitat will be banned; (3) A culturally appropriate education or training program should be initiated to inform fishers and other members of the coastal communities on aspects of dugong biology, conservation and management; (4) Dugong should be considered as the wildlife and should be included in the second schedule and third schedule of the Bangladesh Wildlife Preservation Act, 1974; (5) If dugong does not exist in Bangladesh waters, they should be declared as locally extinct; (6) Research work should be undertaken in universities and other research organizations to assess the current condition, area and extent of the dugong habitat; (7) Regional co-operation and support is imperative to conserve and manage dugong population and their habitat sustainably.

### **References**

Abu Hena M. Kamal and Mohd Ashraful A. Khan, 2009. Coastal and estuarine resources of Bangladesh: management and conservation issues. *Maejo Int. J. Sci. Technol.* 3(02), 313-342.

A. K. M. N. Islam and A. Aziz, "A marine angiosperm from St. Martins Island, Bangladesh" *Bangladesh J. Bot.*, **1980**, 9, 177-178.

Aziz, A, 2009. Coastal and Marine Plant Resources of Bangladesh: Management and Exploitation. Keynote Paper presented in the Annual Botanic Conference, 2009.16pp.



Khan, M.A.A., N.U. Sada, and Z.A. Chowdhury. 2003. Status of the Demersal Fishery Resources of Bangladesh, p. 63-82 In G. Silvestre, L. Garces, I. Stobutzki, M. Ahmed, R.A. Valmonte-Santos, C. Luna, L. Lachica-Alino, P. Munro, V. Christensen, and D. Pauly (eds.) Assessment, Management and Future Directions of Coastal Fisheries in Asian Countries. World Fish Center Conference Proceedings 67,1 120 p.

Marsh, H. and L.W. Lefebvre. 1994. Sirenian status and conservation efforts. *Aquatic Mammals* 20 (3): 155-170.

Marsh, H., H. Penrose, C. Eros, and J. Hugues. 2002. Dugong Status Report and Action Plans for Countries and Territories. Early Warning and Assessment Report Series UNEP/DEWA/RS.02-1, 172 p.

Tun, T. and Ilangakoon, A. D.2007. Assessment of Dugong (*Dugong dugon*) occurrence and distribution in an extended area off the Rakhine coast of western Myanmar. Report to the Society of Marine Mammalogy.32pp.

[http://www.banglapedia.org/httpdocs/HT/A\\_0277.HTM](http://www.banglapedia.org/httpdocs/HT/A_0277.HTM) Dated-12/05/2011.

[http://en.wikipedia.org/wiki/List\\_of\\_mammals\\_of\\_Bangladesh](http://en.wikipedia.org/wiki/List_of_mammals_of_Bangladesh) Dated-14/05/2011.

## Appendix IV: Workshop Photographs



## Appendix V: Field Visit Photographs



## Appendix VI: Workshop in Media

# THE HINDU

Today's Paper » NATIONAL » TAMIL NADU

Published: June 7, 2011 00:00 IST | Updated: June 7, 2011 04:09 IST

### Need for conservation of dugongs

Staff Reporter

*They are endangered marine species found in South Asian waters*



**MAKING A POINT:** Jagdish Kishwan, Additional Director General of Forests (Wildlife) and Director, Wildlife Preservation, addressing the workshop in Tuticorin on Monday. — Photo: N. Rajesh.

: In a bid to enhance regional cooperation for the conservation of dugong (sea cow), Ministry of Environment and Forests hosted the first South Asia Sub – Regional Workshop on Conservation and Management of Dugongs in Tuticorin on Monday.

The workshop was jointly organised by the Ministry of Environment and Forests, United Nations, Environment Programme and Convention on Migratory Species. Dugongs are endangered marine species which are also found in the South Asian waters of India, Pakistan, Bangladesh and Sri Lanka.

Jagdish Kishwan, Additional Director General of Forests (Wildlife) and Director, Wildlife Preservation, Ministry of Environment and Forests, chief guest, said the ministry was interested in focusing on the marine biodiversity with adequate measures to conserve and protect dugongs and their habitats in this part of the world.

"Dugong is the creature which is famed and loved as 'virgin of the sea.' It lives in shallow coastal waters and at sea grass lands. Due to the influence of trawl fishing, blast fishing, increased dredging for shipping industry, discharge of sewage and industrial effluents into seas and destruction of coral reefs and sea grass beds, the marine biodiversity has been disturbed. Hence, ensuring the survival of dugongs is a formidable task. Tranquillity on the path of development is advisable. In India, dugong has been accorded with highest level of legal protection and classified under Schedule - I of Wildlife Protection Act, 1972. Three areas of the Indian coast — the Gulf of Mannar, the Palk Bay, the Gulf of Kutch and the Andaman and Nicobar Islands — have remnant populations of dugongs".

With appropriate research on this endangered marine species, education of science coupled with supplement of financial resources, it could be conserved. Memoranda of signing with other countries on conservation and protection of dugong have become essential. More importantly, the involvement of local community is the utmost necessity for safeguarding dugongs, which will face the threat of extinction in the next 40 years. Saving this species is a difficult task but not really impossible", he added. During October 2010, a taskforce for the conservation of dugongs was constituted with the agenda to look into the entire range of issues.

A.K. Srivastava, Inspector General of Forests (Wildlife), Ministry of Environment and Forests, said there were less than 200 dugongs in India and utmost care should be accorded to conserve them. Donna Ewan of United Arab Emirates said a long time was required to replace the dead ones. It would take seven to eighteen years to attain maturity. Inadequate sea grass could cause delays over breeding, she said.

Prakriti Srivastava, Deputy Inspector General of Forests (Wildlife), V. Negi, Chief Wildlife Warden, Andamans, Shekar Kumar Niraj, Director, GOMER, M. Sundarakumar, Wildlife Warden, Gulf of Mannar Marine National Park, Ramanathapuram, and delegates from Pakistan, India, Bangladesh and Sri Lanka attended.

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# THE HINDU

## S & T » Energy & Environment

Published: June 11, 2011 00:42 IST | Updated: June 11, 2011 00:42 IST

### Sign MoU to protect dugongs, India urges neighbours

B. Aravind Kumar

With fewer than 200 dugongs (commonly known as sea cow) in its waters, India is strongly encouraging its neighbours in South Asia to sign the Dugong United Nations Environment Programme/Convention of Migratory Species (UNEP/CMS) MoU as early as possible.

The first South Asian Dugong Conservation workshop, which was held at Tuticorin as the Gulf of Mannar Biosphere (GoMB) has the largest population of dugongs in the country, has asked Bangladesh, Pakistan and Sri Lanka to sign the MoU at the earliest.

#### Nine objectives

Already 14 countries have signed the MoU designed to facilitate national and trans-boundary actions leading to conservation of dugongs and their habitats. It has nine objectives, including reducing mortality; protect, conserve and manage habitats; raise awareness; improve legal protection and enhance regional cooperation. "We have fewer than 200 dugongs, mostly in GoMB and Andaman and Nicobar waters. There are very few in Gulf of Kutch. Cooperation of neighbouring countries is necessary as the migratory range of the species is long," says A.K. Srivastava, Inspector General of Forests (Wildlife), Ministry of Environment and Forests. "Pakistan has no recent evidence of dugong population. In Sri Lanka there is evidence but could be migratory," he says.

#### High genetic biodiversity value

According to Convention of Migratory Species, the dugong is a sea-grass dependent marine mammal of tropical and subtropical coastal waters, with high genetic biodiversity value.

Currently classified as vulnerable to extinction under the IUCN Red List of Threatened Species, the dugongs are vulnerable to human-related influences due to their life history and dependence on sea grasses that are restricted to coastal habitats under increased pressure from human activities.

The draft Task Force Report on dugongs prepared by the Department of Endangered Species Management, Wildlife Institute of India, attributes several reasons for the decline in population, some of which include sea grass habitat loss and degradation, gill netting, chemical pollutants, indigenous use and hunting.

In GoMB, there has been a 30 per cent increase in population density in the past 20 years, essentially fishermen whose fishing ground has remained the same.

"A particular type of net where 40 to 50 persons operate it for five to six hours sweeps the sea floor completely," says J.K. Patterson Edward, director, Suganthi Devadason Marine Research Institute, Tuticorin. Another killer is the domestic sewage let into the marine biosphere without treatment.

In Andaman & Nicobar Islands, there has been a steady decline in dugong population due to poaching and habitat destruction. The poaching is more by foreign nationals than the local islanders, activists say.

"The co-ordination is to develop and deliver a practical and resource-efficient strategy to collaborate and implement regional management initiatives for conservation," says Jagdish Kishwan, ADGP (Wildlife) and Director, Wildlife Preservation, MoEF.

**Keywords:** [South Asian Dugong Conservation](#), [UNEP/CMS](#), [Convention of Migratory Species](#), [IUCN](#)

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## India to Host Workshop on Conservation and Management of Dugongs

Environment

MONDAY, 06 JUNE 2011 03:32 WRITTEN BY DINESH SINGH RAWAT

Tuticorin (ABC Live): India is hosting the first South Asia Sub-Regional Workshop on the Conservation and Management of Dugongs on 6th and 7th June 2011, in Tuticorin, Tamil Nadu.

Policy and conservation management experts from India, Pakistan, Sri Lanka and Bangladesh will come together to discuss the status of dugong conservation in their respective countries; establish standardized methods to survey dugongs and their habitats; and work towards preparing a coordinated Dugong Conservation and Management Plan in South Asia under the United Nations Environment Programme and the Convention on Migratory Species (UNEP/CMS).

The workshop is being organized jointly by the Ministry of Environment and Forests, and the UNEP/CMS Secretariat, in collaboration with the Wildlife Institute of India. Representatives from India, Pakistan, Sri Lanka and Bangladesh; the Environment Agency of Abu Dhabi; State Forest Departments; experts and Civil Society Organisations will take part in the workshop.

In his message for the workshop, Minister of Environment and Forests, Jairam Ramesh said "I am happy that South Asian Range States are coming together for the conservation and management of this shared marine mammal.

India has constituted a Task Force for the conservation of dugongs. In order to have a focused conservation approach. We are committed to addressing conservation threats faced by the dugong in our waters, and this workshop will take regional and national agendas forward. But as we know, for the most effective kind of conservation, we need the cooperation of all States in the region, as well as the involvement of local communities."

### Workshop Agenda

Dugongs are endangered marine mammals that are also found in the South Asian waters of India, Pakistan, Bangladesh and Sri Lanka. Believed to have been the origin of mermaid legends, remaining populations are at serious risk of becoming extinct in the next 40 years.

The workshop will:

1. Provide updates on the status of dugong populations and associated habitats
2. Introduce Standardized survey methodologies that will identify key dugong habitats, estimate population numbers and trends, and evaluate impacts including direct harvest, habitat degradation and fisheries bycatch
3. Initiate training and capacity building on monitoring and survey techniques
4. Seek grounds for future collaboration in the fields of both research and management
5. Monitor dugong conservation in the South Asia sub-region India will also detail the status of the Dugong in the country, and enumerate strategies for its conservation. Importantly, State Forest Departments of Tamil

Nadu, Gujarat and Andaman and Nicobar will present their comprehensive conservation plan, and provide updates on the status of implementation.

Dugong Conservation in India Three areas of the Indian coast have remnant populations of Dugongs: the Gulf of Kutch, the Gulf of Mannar and the Palk Bay, and the Andaman and Nicobar waters. However, these populations are threatened by mechanized fishing and illegal hunting, pollution and destruction of coral reefs and sea grass beds.

Dugongs are accorded maximum protection under the Wild Life (Protection) Act, 1972 as Schedule I species, and are classified as vulnerable to extinction under the IUCN Red List of Threatened Species. Recognizing the threats to this marine mammal, the Government of India and the Ministry of Environment and Forests signed the CMS-UNEP MoU for the conservation and management of the dugong in April 2008.

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