



Memorandum of Understanding on the
Conservation and Management of Dugongs
and their Habitats throughout their Range

Distr. General
DM/SS.1/Report
Rev. 2 – 17 January 2011

FIRST OFFICIAL SIGNATORY STATE MEETING
Abu Dhabi, United Arab Emirates, 4-6 October 2010

**REPORT OF THE FIRST OFFICIAL SIGNATORY STATE MEETING OF THE
MEMORANDUM OF UNDERSTANDING ON THE CONSERVATION AND MANAGEMENT
OF DUGONGS (*Dugong dugon*) AND THEIR HABITATS THROUGHOUT THEIR RANGE**

Introduction

1. The first official signatory State meeting of the Memorandum of Understanding on the Conservation and Management of Dugongs (*Dugong dugon*) and Their Habitats throughout Their Range was held at the Radisson Blu Hotel, Abu Dhabi, United Arab Emirates, 4–6 October 2010. The meeting was organized by the office of the United Nations Environment Programme/Convention on the Conservation of Migratory Species of Wild Animals (UNEP/CMS), in Abu Dhabi, supported by the Environment Agency–Abu Dhabi.

2. The development of a memorandum of understanding for the conservation of dugongs had been supported by recommendations 7.5 and 8.5 of the Conference of the Parties to the Convention on Migratory Species, in 2002 and 2005 respectively. A draft memorandum of understanding and associated conservation and management plan had been developed at two meetings on dugong conservation and management in Bangkok, Thailand, in August 2005 and May 2006. The negotiations were concluded at a third meeting in Abu Dhabi in October 2007, at which agreement was reached on the final text of the Memorandum of Understanding on the Conservation and Management of Dugongs (*Dugong dugon*) and Their Habitats throughout Their Range. The Memorandum of Understanding entered into force on 31 October 2007 after being signed by seven range States: Australia, Eritrea, France, Madagascar, Myanmar, United Arab Emirates and the United Republic of Tanzania. An informal meeting of signatory States had subsequently been convened in Bali, Indonesia, August 2008.

3. The purposes of the current meeting were to extend the ambit of the Memorandum of Understanding through the addition of further range States as signatories, to update on activities undertaken thus far, and to discuss how best to advance implementation of the Memorandum of Understanding and its associated Conservation and Management Plan.

4. A list of participants attending the meeting is provided in annex I to the present report.

1. Opening of the meeting and welcoming remarks

5. The meeting was opened at 9.25 a.m. on Monday, 4 October 2010 by the facilitator, Mr. Simon Woodley (Australia), who greeted delegates, briefly outlined the plan for the meeting and introduced Mr. Moulay Lahcen el Kabiri, Executive Coordinator of the UNEP/CMS Office in Abu Dhabi.

6. In his opening statement, Mr. El Kabiri welcomed participants to the meeting and conveyed the best wishes and apologies of the Executive Secretary of the Convention, who was unable to attend. He acknowledged the commitment of the Governments of Australia, Thailand and the United Arab Emirates, which had led to the development of the Memorandum of Understanding on the Conservation and Management of Dugongs (*Dugong dugon*) and Their Habitats throughout Their Range within a two-year period. He expressed his appreciation to the Environment Agency–Abu Dhabi for its support to the cause of dugong conservation and he looked forward to further cooperation between the Agency and the Secretariat. He also commended the Agency's efforts to conserve Bu Tinah Island, to the west of Abu Dhabi, home to large populations of dugongs and raptors.

7. He stressed that the number of participants and level of representation at the present meeting demonstrated the commitment of range States to improving the conservation status and sustainable management of dugongs. He said that the Secretariat aimed to support range States by facilitating improvements in bilateral and multilateral programmes on dugongs in the region and providing expertise using the best available science and technology. One of the matters for consideration at the present meeting was whether a technical advisory group would assist in the provision of such expertise. The Secretariat was committed to supporting focal points to implement management plans through the Small-Scale Funding Programme working with partners, such as the UNEP Office for West Asia in Manama, Bahrain, and other United Nations agencies operating in the United Arab Emirates. He welcomed new and existing signatories to the Memorandum of Understanding and expressed the hope that those States that were not yet signatories would be inspired during the present meeting to join. In closing, he wished participants fruitful deliberations and encouraged them to enjoy the culture, traditions and hospitality of the United Arab Emirates.

8. Mr. Thabit Al Abdessalaam, Director of Biodiversity Management, Environment Agency–Abu Dhabi, welcomed the delegates on behalf of Mr. Majid Al Mansouri, Secretary-General of the Environment Agency. He expressed satisfaction at the increase in the number of signatories to the Memorandum of Understanding since it became effective in October 2007. The current meeting would address issues pertinent to dugong conservation, including the priorities and policy directions that would best assist in implementation of the Memorandum of Understanding and the Conservation and Management Plan, which formed the basis of activities for protection of the species across its range. As the only completely herbivorous marine mammal, the dugong had a role beyond its status as an endangered species. Its vulnerability to pressure from human activities, and the fragility of its habitat, meant that the dugong was a crucial indicator of the health of marine ecosystems, so efforts to protect it would lead to the protection of other species and habitats, and ultimately of human beings themselves. In conclusion, he urged delegates to take back to their host organizations what had been learnt and agreed upon during the present meeting in order to assist in the effective implementation of the Memorandum of Understanding and the Conservation and Management Plan.

2. Signature of the Memorandum of Understanding by additional States

9. A short signing ceremony was held to enable the representatives of Palau, Seychelles and Vanuatu to sign the Memorandum of Understanding and participate in the meeting as de facto signatory States. Other recent signatories were Bahrain and Yemen, immediately prior to the current meeting; and Papua New Guinea and Solomon Islands, in September 2010.

10. Mr. El Kabiri expressed his satisfaction that all of the Pacific range States had signed the Memorandum of Understanding, which would facilitate its implementation in the Pacific region. He called on those Arab States that had not yet signed the non-binding agreement to do so in order to improve regional cooperation.

3. Election of officers

11. The following officers were elected:

Chair: Mr. Thabit Al Abdessalaam (United Arab Emirates)

Vice-chair: Mr. Antonio Manila (Philippines)

4. Adoption of the agenda, schedule and rules of procedure

12. The meeting adopted its agenda on the basis of the provisional agenda contained in document DM/SS.1/Doc.1, the annotated provisional agenda in document DM/SS.1/Doc.2 and the provisional schedule in document DM/SS.1/Doc.3. With some further adjustments to item 12 during the course of the meeting, the agenda followed by the meeting was as follows:

1. Welcoming remarks
2. Signature of the Memorandum of Understanding by additional States
3. Election of officers

4. Adoption of the agenda, schedule and rules of procedure
5. Opening statements
6. Presentation: Update on global status of the dugong
7. Report of the Secretariat
 - 7.1 Establishment and operations
 - 7.1.1 Establishment of the Abu Dhabi Office
 - 7.1.2 Finances
 - 7.1.3 Voluntary contributions
 - 7.1.4 Additional sources of funding
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 - 7.2 Memorandum of Understanding implementation activities
 - 7.2.1 Status of signatures
 - 7.2.2 Designated competent authorities and contact points
 - 7.2.3 Meetings and other activities
 - 7.2.4 Communications
8. Small-Scale Funding Programme
9. Alliances, synergies and complementary activities
10. Reporting process for national implementation of the Conservation and Management Plan
 - 10.1 Consideration of the need for and definition of subregional groupings
 - 10.2 National reports: Revision of draft template
11. Development of standardized Dugong Catch/Incidental Catch Survey Tool
 - 11.1 Standardized Dugong Catch/Incidental Catch Survey Tool
 - 11.2 Reports from subregional projects: South-East Asia, Pacific, South-West Indian Ocean and North-West Indian Ocean
12. Progress in dugong conservation
 - 12.1 Exercise: Reducing risk to dugongs
 - 12.2 Report from the Technical Expert Group: Overview of tools for conservation
 - 12.3 Area closures as a tool for dugong conservation
 - 12.4 Presentation: Investments in biodiversity conservation
 - 12.5 Presentation: Case study on addressing fisheries impacts and lessons learnt from Baha California
 - 12.6 Presentation: Cash incentives for endangered marine species conservation, United Republic of Tanzania
 - 12.7 Exercise: Application of management tools to different scenarios
 - 12.8 Presentation: Selection criteria for pilot projects
 - 12.9 Consideration of recommendations on management tools
13. Consideration of the need and options for a technical advisory group
14. Adoption of draft meeting report template
15. Next meeting of signatories
16. Any other business

17. Closure of the meeting

13. A new initiative for this meeting was the lunch-time side-events, which could include presentations provided by interested individuals or NGOs on topics relevant to the conservation and management of dugongs. Expressions of interest were sought and presented to the Signatory States for their consideration well prior to the SS1 meeting. There were two expressions of interest and no objections from Signatories for these side-events to be included in the final schedule in document DM/SS.1/Doc.3.

14. Mr. El Kabiri drew attention to the provisional rules of procedure for the meeting (DM/SS.1/Inf.7), which were based on previous documentation under the Convention on Migratory Species. The meeting agreed to adopt the provisional rules of procedure as the basis for its organization.

5. Opening statements

15. Opening statements were made by the representatives of France, India, Indonesia, the Islamic Republic of Iran, Malaysia, Mozambique, Palau and Thailand. A number of those representatives gave brief summaries of the status of dugong conservation in their countries, and the legislative and other measures that were being taken in support of that goal. Several representatives expressed the intention of their countries to become signatories to the Memorandum of Understanding in future, given the due legal processes within their national systems. A strong theme running through the statements was the need for further regional and subregional cooperation among range States, including with regard to information sharing, undertaking studies of the status of dugong populations and habitats, and the development of plans of action.

6. Presentation: Update on global status of the dugong

16. Ms. Helene Marsh, Professor of Environmental Science, James Cook University, Queensland, Australia, gave a presentation on the current global status of the dugong. She said that the order Sirenia, of which the dugong was one of the four member species, had been identified by one authority as one of the mammalian orders most at risk of extinction. Steller's sea cow, which had been hunted to extinction in the 18th century, presented a cautionary example.

17. Several characteristics meant that dugongs were particularly at risk: they were long lived and slow breeding (and therefore had low sustainable mortality from all sources, including anthropogenic impacts), inhabited warm waters accessible to human impact, and had valuable by-products, including food. Satellite tracking had shown that they moved long distances, often across international borders, in search of the seagrass that constituted their diet. The greatest single threat was incidental catch by artisanal gillnet fisheries.

18. Ms. Marsh then turned to a regional analysis of the status of the dugong based on the criteria (or "decision rules") applied for inclusion of species on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. In that classification the dugong was listed as "vulnerable" at the global scale. Its estimated range was 128,000 kilometres of coastline in 38–45 countries. However, there was significant variation at regional and subregional levels in both the status of the dugong and the factors influencing that status, including socio-economic factors as measured by the United Nations human development index. For example, application of the selected criteria revealed the dugong to be endangered in the Southern Indian Ocean region, South Asia and continental South-East Asia, while it was vulnerable in archipelagic South-East Asia. Deficiency of data prevented classification in a number of regions, including the Red Sea, the Gulf and the Pacific Islands. Australia presented a very mixed picture, with dugong conservation measures proving fruitful in Shark Bay, while the status was critical along the urban coast of Queensland despite the number of interventions taking place, principally due to bycatch in beach protection shark nets. In most regions, there was still a high degree of uncertainty as to its status.

19. Plotting the dugong population size against the human development index gave three categories: rich countries with large populations of dugong, such as Australia; areas with low human development indices or low dugong populations, where the dugong was most under threat; and intermediate areas where, with international assistance and sharing of information, it was possible to be cautiously optimistic about dugong conservation. In conclusion, Ms. Marsh said that on the positive side, the total global population of dugongs could be as many as 100,000, and it was still present at the edges of its huge range. On the other hand there was anecdotal evidence of significant habitat loss and species decline. Overall, the

dugong still faced multiple threats across its entire range. Ms. Marsh emphasized that although more specific data on populations and status were needed, enough was known to conclude that the situation was critical and that action to reduce human-induced mortality should not be delayed.

20. During the ensuing discussion, a number of representatives highlighted the need for increased regional collaboration on matters related to dugong conservation, including data sharing and application of standard methodologies such as aerial surveys and survey questionnaires to assess populations. The Gulf was highlighted as an area that would benefit significantly from regional cooperation.

21. A representative said that action rather than further research was a priority; the threats to the dugong were clearly established, and the current state of knowledge was sufficient for conservationists to intervene effectively. In doing so, it was important to take advantage of traditional knowledge and engage local communities. Ms. Marsh agreed on the urgent need for culturally and socio-economically appropriate action, supported by a set of recommendations in the form of a “toolbox” that included spatial, temporal and incentive-based tools that could be applied by countries according to their national needs and circumstances.

22. In response to a query about captive breeding of dugongs, Ms. Marsh said that there was no instance of successful breeding of dugongs in captivity, and it was not currently a conservation solution.

23. Responding to a comment on traditional use of dugongs, Ms. Marsh said that in many countries traditional use and incidental capture in nets had merged as a threat, with the latter often displacing the former. In many countries traditional use was now banned, though a decision on whether to apply such a ban needed to be made on a country-by-country basis, according to appropriate criteria. One representative said that in many communities so-called “traditional” uses were becoming increasingly commercial, with community values being eroded by global economic pressures. Ms. Marsh noted that in some areas, such as the Torres Strait, rebuilding cultural values that supported dugong conservation was seen as a vital component of dugong conservation. It was important to build on the long-term knowledge contained within traditional and indigenous communities.

24. The representative of India said that in the southern part of that country the dugong seagrass habitat was being threatened by movement of population to the coast and the resulting impact on marine resources, and by the effect of climate change on marine habitats. With regard to the latter, Ms. Marsh said that it was still uncertain what the impact of climate change would be on seagrass habitats, though there was ample evidence that such habitats could be greatly damaged by severe storms, the incidence of which was projected to increase under several climate change scenarios.

7. Report of the Secretariat

7.1 Establishment and operations

7.1.1 Establishment of the Abu Dhabi office

25. Introducing the item, Mr. El Kabiri provided an overview of the process leading to the establishment of the Abu Dhabi office as set out in the report of the Secretariat on establishment and operations (DM/SS.1/Doc.5). He said that the Government of the United Arab Emirates had proposed the establishment of the office at the informal meeting of signatory States to the Memorandum of Understanding held in Bali in August 2008. He outlined the office’s human resources capacity, which included a staff of six members, and its budget, as set out in annex 1 to the report of the Secretariat.

7.1.2 Finances

26. Mr. El Kabiri emphasized that the procedures for disbursement of funding were in accordance with United Nations rules and regulations. Drawing attention to the previous voluntary contribution provided by the Government of Australia for small-scale projects, he said that identification of priority projects and programmes had been undertaken at the Bali meeting and the terms of reference of a number of small projects had been agreed upon.

27. The Ambassador of the Seychelles announced his Government’s voluntary contribution pledge of \$10,000 for the Small-Scale Funding Programme. He stressed that although Seychelles was a small country of limited means, it was committed to international efforts under way to conserve the dugong.

7.1.3 Voluntary contributions

28. On the subject of voluntary contributions, Ms. Donna Kwan, Programme Officer, Dugong Memorandum of Understanding Secretariat, highlighted that the Memorandum of Understanding was a non-legally binding instrument and contributions were not, therefore, mandatory for signatories. She expressed gratitude to the Government of Seychelles for its generous pledge and invited similar additional voluntary contributions.

29. Responding to a request for clarification of paragraph 13 of document DM/SS.1/Doc.5, regarding a suggested annual voluntary contribution from developing countries, she said that the paragraph referred to the Memorandum of Understanding on the Conservation and Management of Marine Turtles and Their Habitats in the Indian Ocean and South-East Asia, which relied very heavily on voluntary contributions to support its Secretariat and projects, and was intended to stimulate discussion.

7.1.4 Additional sources of funding

30. Ms. Kwan drew attention to a number of projects and initiatives that required financing and appealed to signatory States to provide guidance on potential sources of funding and support.

7.1.5 Work programme for 2011 and 2012

31. Ms. Kwan stressed that the core activities of the work programme for the 2011–2012 biennium related to the maintenance of activities and projects initiated during 2010. She drew attention to planned activities set out in paragraph 17 of the report of the Secretariat. At a recent meeting of the Secretariat of the Pacific Regional Environment Programme held in Papua New Guinea there had been strong support for the declaration of 2011 as the Pacific Year of the Dugong; as all of the Pacific range States were now signatories to the Memorandum of Understanding, the Secretariat looked forward to further developments in that regard. She noted that the Secretariat would seek expressions of interest to host the second official signatory State meeting of the Memorandum of Understanding in due course.

32. Concluding item 7.1, the signatory States noted the report of the Secretariat on establishment and operations.

7.2 Memorandum of Understanding implementation activities

7.2.1 Status of signatures

33. Introducing the item, Ms. Kwan drew attention to the report of the Secretariat on Memorandum of Understanding implementation activities (document DM/SS.1/Doc.6), noting that to date there were 18 signatories to the Memorandum of Understanding.

7.2.2 Designated competent authorities and contact points

34. Ms. Kwan said that annex 2 to document DM/SS.1/Doc.6 contained a provisional list of designated competent authorities and contact points; she appealed to participants to make corrections thereto, where necessary, and to provide current contact details for focal points to facilitate and improve communication efforts by the Secretariat.

7.2.3 Meetings and other activities

35. Ms. Kwan said that preparations for the present meeting had been initiated in January 2010 and had required almost a full year of work. It was agreed that official signatory State meetings of the Memorandum of Understanding would be held on a biennial basis with the next meeting planned for 2012.

7.2.4 Communications

36. Ms. Kwan said that the Secretariat's website was up and running and would be maintained as a continued point of contact and communication between the Secretariat and signatory States, among others.

37. Concluding item 7.2, the signatory States noted the report of the Secretariat on implementation of the Memorandum of Understanding, and agreed to provide advice on any additional activities that might warrant inclusion in the Secretariat's work programme over the coming year, subject to availability of resources.

8. Small-Scale Funding Programme

38. Introducing the item, Ms. Kwan drew attention to the report on the Small-Scale Funding Programme, set forth in document DM/SS.1/Doc.7. She noted that prior to the establishment of the Secretariat, UNEP/CMS and the UNEP Regional Seas Programme had agreed at an informal meeting of signatory States to the Memorandum of Understanding, held in Bali in August 2008, to jointly provide funding to support projects that were aimed at implementing conservation and management plans. She provided an overview of three projects implemented using a voluntary contribution by the Government of Australia for small grants funding. She said that due to an unprecedented funding surplus, the Secretariat had implemented six further subregional projects that had focused on updating information on the distribution and abundance of dugongs and collating technical advice, as detailed in annex 4 to the report on the Small-Scale Funding Programme.

39. She said that the operations of the Small-Scale Funding Programme would begin in 2011–2012; the Secretariat aimed to use that funding strategically to leverage further funding and investment in projects. She drew attention to the draft application guidelines set forth in annex 1 to the report and highlighted a number of stipulations for applications: applications would be assessed by the Secretariat within three months of their submission; project duration should be between six and twelve months; and while small-scale funding was generally limited to a maximum of \$20,000, the Secretariat was aware of the need for flexibility in that regard. She stressed that projects based on regional cooperation would be viewed favourably, with priority accorded to signatories to the Memorandum of Understanding, followed by parties to the Convention on Migratory Species and thereafter to dugong range States. She underscored the importance of full budget justification for proposals and evidence of organizational support and coordination.

40. In response to a question on the exclusion of students, including PhD candidates, as chief investigators for project proposals, it was agreed that flexibility might be required; a student who was working professionally with a demonstrated professional record could be considered for such a post.

41. Concluding the item, the signatory States noted the call for applications for small-scale funding projects and the criteria guiding selection. It was also agreed that the wording of the guidelines would be amended to reflect that priority would be given to proposals for projects that demonstrated the potential for shared conservation synergies.

9. Alliances, synergies and complementary activities

42. Ms. Kwan drew the attention of the meeting to document DM/SS.1/Doc.8 on possible alliances, synergies and complementary activities between the dugong Memorandum of Understanding and other international and regional instruments. The Memorandum of Understanding recognized the value of complementarity between dugong conservation activities and related activities being undertaken nationally, bilaterally, regionally and globally. The Secretariat welcomed suggestions on other instruments and measures with the potential to enhance the conservation goals of the dugong Memorandum of Understanding. Such synergies would be consistent with resolution 9.9 of the ninth meeting of the Conference of the Parties to the Convention on Migratory Species, which called for greater sharing of technical expertise and resources on marine migratory species. Of the 25 agreements operating under the framework of the Convention on Migratory Species, those with most potential for linkages were the Memorandum of Understanding on the Conservation and Management of Marine Turtles and Their Habitats in the Indian Ocean and South-East Asia; the Memorandum of Understanding for the Conservation of Cetaceans and Their Habitats in the Pacific Islands Region; and the Memorandum of Understanding Concerning the Conservation of the Manatee and Small Cetaceans of Western Africa and Macaronesia. The Secretariat had taken the initiative to investigate synergies with marine turtle conservation activities at a workshop in Goa, India, April 2010.

43. Delegates were requested to provide advice on other possible initiatives and opportunities to improve linkages and synergies, both within and outside the Convention on Migratory Species family. In the ensuing discussion, representatives drew attention to a number of areas presenting potential for synergies and linkages. At the global level, the Convention on Biological Diversity was highlighted as a multilateral environmental agreement pertinent to dugong conservation, with one representative noting that, with 2010 being the International Year of Biodiversity, significant activity had been taking place in that area in preparation for the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity in Nagoya, Japan, October 2010. She also mentioned that potential for synergies

existed outside the United Nations family, for example with the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention), given that the definition of wetlands under that convention extended to marine coastal environments up to 6 metres in depth, well within the range of the dugong.

44. With regard to regional processes, a representative from East Africa said that the Convention for the Protection, Management and Development of the Marine and Coastal Areas of the Eastern African Region (the Nairobi Convention) had proved an effective platform for data sharing in the subregion. Other regional processes mentioned by representatives as ripe areas for collaboration included the South Asian Association for Regional Cooperation; the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security, which had at recent meetings been discussing a regionwide conservation plan for marine turtles and dugongs; and the Pacific Regional Environment Programme, which had action plans for various endangered marine species, and which cooperated closely with the Convention on Migratory Species.

45. Responding to a question about compilation of a database on dugong-related activities, Ms. Kwan said that information compiled by memorandums of understanding and other agreements mostly came from national reports. For region-specific data, the best source could be regional organizations, such as those mentioned in the discussion, which often compiled relevant data for their regions.

46. Concluding the agenda item, the signatory States, and where appropriate other meeting participants, agreed to note the existing linkages between the memorandums of understanding of the Convention on Migratory Species and other international and regional instruments, policies and strategies affecting dugongs; and requested the Secretariat to report regularly on the progress of those synergies in a specific agenda item at future meetings.

10. Reporting process for national implementation of the Conservation and Management Plan

10.1 Consideration of the need for and definition of subregional groupings

47. Introducing the item, Ms. Kwan drew attention to the report by the Secretariat on consideration of the need for and definitions of subregional groupings set forth in document DM/SS.1/Doc.9.1, which, she said, was designed to seek the guidance of signatory States on their preferences for subregional groupings and to facilitate the Secretariat's implementation support efforts. She recalled that the issue of geographical scope had been discussed during the elaboration of the Memorandum of Understanding and country names had deliberately been omitted therein due to limited knowledge regarding the location of dugong populations. The proposed subregions covered five broad geographical areas, namely the South-West Indian Ocean, the North-West Indian Ocean, South Asia, South-East Asia, and the Pacific. She described the two current regional arrangements relevant to the dugong Memorandum of Understanding: the conservation and management plan for dugongs and their habitats in the Western Indian Ocean and the regional action plan for dugongs 2008–2012 in the Pacific. She highlighted some administrative advantages of subregional groupings and invited participants to comment on the need for and usefulness of the proposed subregional groupings and alternative groupings taking into account, for example, political, linguistic or cultural criteria.

48. In the ensuing discussion, most of the representatives who spoke supported the proposed subregional groupings. A number of representatives described initiatives being undertaken at the subregional level and several representatives highlighted problems related to the particular circumstances of their territories, including the location of certain countries in more than one region and the location of a State's territories in different areas of the world, for which aggregated data would be misleading.

49. One representative drew attention to the variations in dugong populations at the global scale, threats to them and related expertise. She stressed the importance of sharing information and expertise across subregions and the crucial role of a technical advisory group in that regard. In addition, she underscored the need to take into account the national specificities within the subregions.

50. Several representatives supported the proposal to emulate the model for regional coordinators of the Memorandum of Understanding on the Conservation and Management of Marine Turtles and Their Habitats in the Indian Ocean and South-East Asia. One representative suggested that in the interests of enhanced synergies, among other things, the same national focal point could represent more than one memorandum of understanding, for example those on dugongs and marine turtles. Responding to a question on terms of reference, Ms. Kwan said that the Secretariat could, upon request by signatory States,

provide draft terms of reference for subregional coordinators elaborated on the basis of the terms of reference for such coordinators under the marine turtle Memorandum of Understanding.

51. A number of representatives stressed the importance of avoiding duplication of effort, exploiting synergies between various agreements, including with the Memorandum of Understanding for the Conservation of Cetaceans and Their Habitats in the Pacific Islands Region, and making use of existing cooperative platforms, partnerships and frameworks, such as the framework for sharing knowledge and data under the Nairobi Convention.

52. Mr. El Kabiri said that the UNEP/CMS office in Abu Dhabi had limited shared resources for the implementation of two memorandums of understanding on raptors and dugongs. He expressed his support for the exploitation of synergies and the optimal sharing of resources and information.

53. Concluding the agenda item, the signatory States agreed to endorse the proposed subregional groupings to assist Secretariat support to them and to subregional groupings, and to give further consideration to other subregional arrangements they wished to formally establish or strengthen; and supported the appointment where practicable of subregional coordinators that utilized existing agreements, similar to the model of the marine turtle Memorandum of Understanding.

10.2 National reports: Revision of draft template

54. Introducing the item, Ms. Kwan provided an overview of the report by the Secretariat on national reports: revision of a draft template, set forth in document DM/SS.1/Doc9.2, and a document entitled "Template for submission of national reports". She said that the purpose of the report was to present the revised draft template for national reporting and to seek further advice from signatory States on its appropriateness and usefulness. She said that two templates would be produced, one for use by the range States of the Western Indian Ocean region and another for all other States. She described the general format of the template, which had been developed taking into account signatories' comments over the course of subregional meetings. She welcomed further comments at the present meeting and noted that a trial of the template would be conducted in the following months.

55. In the ensuing discussion, there were several requests for clarification regarding the latest version of the template. A number of challenges faced in completing the template were raised, and suggestions for amendments were proposed. One representative described the problems associated with completing one report for a country with territories in different areas, given their variability in terms of dugong populations, among other things. Another representative said that countries with large territories encompassing varying circumstances and threats would have to provide a general overview when using the template.

56. Ms. Kwan stressed that in developing the template it had been necessary to follow the wording contained in the conservation and management plans. She asked participants to submit their specific comments in writing and said that consideration would be given to challenges faced by individual countries.

57. Mr. Nicolas Pilcher, Technical Adviser, Marine Research Foundation, said that the text set out in the template had not changed since the distribution of the previous version, but that a number of additional boxes had been inserted to describe the stages of planning or status of completion of activities as well as the difficulty associated with implementation of those activities. The purpose of the additional boxes was, in part, to highlight areas where States needed assistance from the Secretariat.

58. In concluding the item, the signatory States agreed to endorse the national reporting templates, subject to amendment, as an essential component of the dugong Memorandum of Understanding implementation process; and to prepare reports using the revised template produced at the present meeting, subject to amendment, at a future date to be determined, in order to test the templates and contribute to a better understanding of progress in implementation and where assistance was needed.

11. Development of standardized Dugong Catch/Incidental Catch Survey Tool

11.1 Standardised Dugong Catch/Incidental Catch Survey Tool

59. Introducing the item, Ms. Kwan said that the Standardised Dugong Catch/Incidental Catch Survey Tool (DM/SS.1/Doc.10) had been developed in recognition of the high level of impact of incidental catch,

particularly from artisanal gillnet fisheries, on dugong populations, and responded to objective 1 in the Conservation and Management Plan, namely to reduce direct and indirect causes of dugong mortality. Mr. Pilcher, as technical adviser, gave further information on the development of the tool, which was based on previous work involving a series of expert consultations and trials over a period of years. It was important, he said, to obtain information not just on dugongs and their habitat, but on the magnitude of the fishery that was impacting the dugong population. The survey tool that had ultimately been produced was quite long, but had been trialled effectively in several locations, and generated sufficient information to allow multiple overlay of data layers. The first trial had been undertaken in South-East Asia and the second in the Pacific Islands, and further surveys were upcoming in the Western Indian Ocean. Feedback on application of the questionnaire was being used to further refine the survey tool.

11.2 Reports from subregional projects: South-East Asia, Pacific, South-West Indian Ocean and North-West Indian Ocean

60. Mr. Kongkiat Kittiwattanawong, Marine Biologist, Phuket Marine Biological Centre, gave a presentation on use of a modified UNEP/CMS standardized dugong catch/bycatch questionnaire to carry out an assessment of the distribution and abundance of dugongs and the impacts of fisheries at selected locations in Cambodia, Myanmar, Thailand and Viet Nam. The questionnaire sought information on interviewee background, dugong catch and bycatch, the fishery, fisher perceptions, and sightings and locations of dugongs, which enabled geo-referenced mapping of results. Using the west coast of Thailand as a case study, he demonstrated how the results of the survey generated informative data on fisher income, fishing gears, dugong abundance and trends, and fishery impacts on dugong populations. In addition, the on-the-ground survey allowed “groundtruthing” of previous aerial surveys. The survey had provided stimulus to further activities, including development of a regional database and automated data interpretation system, and extension of the survey into additional areas. The results confirmed the value of the dugong catch/bycatch survey tool, with data on dugong distribution and “hotspots” highly correlated with previous aerial survey results.

61. Following the presentation, Mr. Pilcher congratulated the research team on the impressive amount of information that had been generated by the study, which demonstrated effectively how significant results can be achieved on a small budget within a short period.

62. Mr. Lui Bell, Marine Species Officer, Secretariat of the Pacific Regional Environment Programme, gave an update on the dugong questionnaire-based survey in the Pacific Islands region, which covered a large number of small island States and Territories in a vast ocean. He outlined the methodology of the survey, which aimed to document the status and trends of dugong populations and the impact of artisanal fisheries. Funding had been obtained from UNEP/CMS under a small-scale funding agreement. National surveys had been undertaken in New Caledonia, Palau, Papua New Guinea and the Solomon Islands, with the Vanuatu survey yet to commence, and results were still preliminary. Importantly, a number of fishers in Palau reported giving up hunting dugongs since the enactment of legislation prohibiting the killing or possession of dugongs. Challenges included limited financial and human resources; cost of travel to remote areas; and limited national collaboration. A valuable lesson learnt was the importance of maintaining the high value of the exercise by ensuring accuracy and efficiency when balancing the cost against other national commitments and demands on external financing.

63. Ms. Patricia Davis, Community Centred Conservation, gave a presentation on application of the survey tool in the South-West Indian Ocean, where use of the tool was at an earlier stage than in the South-East Asia case. Commencing with an overview of dugong status in the region, she said that populations were mostly very small, having been much reduced by unsustainable levels of bycatch. She summarized the results of the first regional technical meeting, Madagascar, August 2010, which had confirmed that dugongs were critically endangered at national and regional levels, despite being listed as “vulnerable” at a global level by IUCN. Further research was needed on dugong status in the region, including through use of the UNEP/CMS project manual and questionnaire, and seagrass mapping through Seagrass Watch. Regional priorities included development of a subregional coordination mechanism; application of standardized methods; strengthening institutional capacity; habitat mapping; and a regional sensitization and awareness strategy. Trialling of the questionnaire was planned for three to five countries, commencing in April 2011. Financial support and capacity-building were urgently required, given that the South-West Indian Ocean was the region where the dugong was probably most under threat of extinction.

64. Following the presentation, Ms. Marsh said that the IUCN classification of the dugong as “vulnerable” was unlikely to change, and a priority was to work with IUCN to undertake a regional assessment. She also said that carrying out a genetic assessment of dugong populations in the region was more cost effective and useful than attempting to document transboundary movements, for example through satellite tracking. Building international cooperation on genetic research would be a valuable initiative. Another representative said that the technical experience of the Secretariat had proved very beneficial at the Madagascar meeting, and requested that such technical support be made available for future meetings.

65. Mr. Himansu Das, Environment Agency–Abu Dhabi, gave a presentation summarizing the outcomes of the North-West Indian Ocean regional meeting in Abu Dhabi, September 2010. At that meeting, Bangladesh, the Islamic Republic of Iran and Pakistan had reported no occurrences of dugongs in their coastal waters, but had expressed interest in undertaking surveys in areas of potential occurrence. Mr. Pilcher had given an overview of the Standardised Dugong Catch/Incidental Catch Survey Tool and had described how it had already been applied in various countries. The meeting had also explored the possibility of synergies between dugong and marine turtle research and management, which had the potential to prove cost effective.

66. Following the presentations, a representative asked why the focus was on bycatch by small-scale fishers and not large-scale fishers. Ms. Marsh said that the shallow water typically inhabited by dugongs was inaccessible to larger boats, and there was compelling evidence that almost all dugong bycatch occurred in gillnets in small-scale fisheries.

67. Concluding the item, the signatory States and observers, where appropriate, endorsed the Standardised Dugong Catch/Incidental Catch Survey Tool for application where small-scale artisanal fisheries create a threat to dugong population viability; endorsed the application of the tool to other potential range States; and agreed to expand the application of the surveys to all range States, subject to available resources.

12. Progress in dugong conservation

12.1 Exercise: Reducing risk to dugongs

68. Participants in the meeting took part in a group exercise to introduce them to risks to dugongs, responses and related tools. Introducing the exercise, Ms. Marsh said that it aimed to encourage participants to consider different approaches to reduce the risk of incidental catch of dugongs in gillnets and the costs and benefits thereof. She said that incidental catch by subsistence fisheries was the greatest risks to dugongs in their range and that gillnetting affected close to 90 per cent of their range. In view of their slow breeding cycle, the survival of adult dugongs was of critical importance. To maintain a viable population, 95 per cent of adults that were alive at the beginning of a given year needed to be alive at the end of that year. The avoidance of incidental catch was, therefore, significant in dugong conservation. During the fourth and final stage of the exercise, participants were invited to consider in small groups the advantages and disadvantages of different means of dugong conservation, such as area closures and incentives, in their subregions.

12.2 Report from the Technical Expert Group: Overview of tools for conservation

69. Mr. Woodley provided an overview of a technical workshop on innovative tools for the mitigation and management of impacts on dugongs held in Brisbane on 30 and 31 August 2010. The workshop had included participants of mixed expertise from varied social, economic, cultural and conservation contexts who had gathered to identify additional mitigation and management tools for consideration at the present meeting and elaborate draft criteria for pilot project selection, among other things. He said that one of the failures of conventional interventions had been the exclusion of local communities from areas they depended on for their livelihoods. Participants in the workshop had recognized that significant benefits were accrued when local stewardship was linked with sustainable economic development. He stressed that according priority to cultural practices that supported conservation of dugongs constituted a powerful tool for their sustainable management. He underscored the importance in dugong conservation of community involvement, performance-based and direct payment conservation schemes and a mix of tools that could cater to the specificities of different locations. He invited participants to consider possible locations or hotspots with sufficient populations of dugongs to allow for verifiable testing of tools; the Secretariat

would then work with regional and subregional groupings to develop projects with adequate funding and appropriate tools.

12.3 Area closures as a tool for dugong conservation

70. In her presentation, Ms. Alana Grech, researcher at the ARC Centre of Excellence for Coral Reef Studies, James Cook University, Australia, said that for the purposes of dugong conservation, area closures aimed to restrict activities such as fishing and trawling, industrial development, mining, oil drilling and tourism, which threatened dugong survival. Recalling that incidental catch in gillnets constituted the primary threat to dugongs throughout their range, she described measures aimed at its reduction, including fishing restrictions in their entire range or in different areas of that range. She said that area closures of significant dugong habitats were particularly effective; notwithstanding the risk of incidental catch when they moved out of their habitat, most of the members of a population were protected at any given time. Temporal area closures at specific times of the year, such as when dugongs were breeding, were also useful. She outlined the strengths and weaknesses of area closures as identified by participants at a workshop on improving the contribution of marine protected areas to the conservation of Sirenians held in Washington, D.C., in May 2009. The participants had described features of effective area closures as including community involvement with incorporation of local knowledge; strong education and outreach programmes; alternative livelihoods for community members affected by area closures; and co-management by the local community, the government, non-governmental organizations and scientists. At the government and State level, a legal framework and the political will to implement protected areas were key factors, as were effective enforcement, management informed by active research and adequate funding.

71. In the ensuing discussion, one representative sought clarification of the potential disadvantages of spatial and temporal area closures in developing countries. Another representative drew attention to the particular challenges of enforcement of restrictions on gillnetting, which was undertaken mainly at night from small boats, making oversight difficult. Another representative said that commercial fisheries in many countries were able to bribe officials to disregard habitat destruction and fail to enforce area closure.

72. One representative described activities in his country where gillnet fishing was restricted by the Government in community reserves, sometimes for certain periods of the year, and were managed by the local community. Another representative said that combining objectives, such as the conservation of sea turtles and dugongs, had increased political backing for area closures in his country. One representative suggested that placing a value on ecosystem services, for example through a “willingness to pay” mechanism, would enhance the ability to attract funds for conservation.

73. Responding to questions, Ms. Grech said that area closures were difficult to enforce in countries that lacked the resources to pay for monitoring and enforcement activities. She said that experts considering risks to dugongs in Queensland, Australia, had found that gillnets had a far greater impact on dugongs than trawlers and that the larger the mesh size the more likely they were to entangle the limbs or body parts of dugongs.

74. There was some discussion on the definition of area closures in relation to marine protected areas and biosphere areas as defined by the United Nations Educational, Scientific and Cultural Organization. Ms. Grech said that the area closures she was referring to in her presentation were places where gillnetting was restricted. There were, however, many types of closures entailing different restrictions. A representative of the Secretariat said that IUCN had established categories of protected areas. Any country could establish its own process for the protection and conservation of species and involvement of local communities in that regard was crucial.

12.4 Presentation: Investments in biodiversity conservation

75. Mr. Josh Donlan, Advanced Conservation Strategies, gave a presentation on the use of investments, incentives and innovative finance in biodiversity conservation. Funding for biodiversity conservation traditionally came in the form of grants, loans and donations from government, non-governmental organizations or foundations. Amounts were relatively small because of the low priority accorded to biodiversity conservation compared with other political or social issues. He showed a range of investments in biodiversity conservation, ranging from indirect market-based investments (for example sustainable logging) to direct non-market investments (for example biodiversity performance contracts). Innovative

financing involved the use of financial engineering to generate new sources of funding or increase the return on investment from current funding sources.

76. One particular challenge was to devise value transfer mechanisms that linked the global existence value of a natural resource to the local extractive value of the same resource. Another was to maximize the value of the conservation investment by calculating the opportunity cost of alternative investments forgone in the process of conservation. Underlying those initiatives was a deliberate intention to change behaviour towards protection of valued species through the use of money, while avoiding perverse outcomes such as those arising from listing of species under the United States Endangered Species Act. In that case the costs of recovery were high and inefficient and often led to landowners avoiding the risk of listing (and the imposition of costs on the landowner) by eliminating the endangered species from their land.

77. Derivative-based insurance products (financial instruments designed to allow the commoditization and sale of risk) had been developed that allowed investors to insure against risk but to access funds when trigger levels were reached. Those products were currently used to spread risk and stabilize funding across many corporate and social scenarios and included catastrophe bonds, weather derivatives and insurance for humanitarian interventions after crop failure but before famine had become entrenched. That approach to reducing risk and generating funding for interventions in biodiversity conservation before the need became critical could be adapted for dugong conservation.

78. Market-based financial instruments included taxes (which placed a direct cost on production); bonds (a fee to be paid if social costs exceeded a predetermined limit); “cap and trade” measures, where a limit was placed on the amount of a commodity (such as CO₂) that could be produced, thereby creating a market where scarcity drove cost; and offsets, where an in-kind fee was required to compensate for environmental damage through investment in recovery or rehabilitation elsewhere. Those tools were generally penalties imposed on activities that externalized social costs.

79. Finally, the financial tools of possibly the most relevance to dugong conservation were those whereby payments were made in return for biodiversity services through biodiversity performance contracts. Examples of those were in the form of biodiversity bonds, species swaps, direct cash payments or through debt financing. In those approaches, the social costs of biodiversity conservation could be reduced to zero through the use of incentives to change behaviour towards conservation while improving community social and economic well-being.

80. A biodiversity bond might be sold to a person with conservation obligations on their property. The bond price was set to be attractive and to provide a return on investment conditional on the achievement of conservation goals such as maintenance of species population. The investment was lost if the conservation goal was not reached. The approach was proactive and anticipatory (that is, before the species became endangered) and had agreed trigger points for action, but required strong governance and regulatory systems.

81. Species swaps could be used whereby a private operator paid an annual fee to ensure protection of a valued species on their property in return for permission to undertake an economic activity on the property. The fee was forfeited if the species declined, but was returned if the species was maintained. A payment was made if the species increased. The approach aligned the interests of stakeholders (for example environmental groups) and shareholders (investors in the business). Once again, strong governance and auditing was required for effective execution.

82. Mr. Donlan gave a number of examples of practical application of some of those tools. Maximizing return on investment was demonstrated through a case study on flesh-footed shearwaters on Lord Howe Island in the Pacific. Many adult and juvenile birds were killed as bycatch in the East Coast Tuna and Billfish Fishery and the fishery was faced with closure if that level of mortality could not be addressed. Investment in the eradication of the rat population on Lord Howe Island, which threatened shearwater breeding success, was shown to be more cost effective than the cost of fishery closure. A second example in Tierra del Fuego analysed alternative strategies to finance the cost of beaver eradication and restoration of damaged woodland and riparian areas. It showed that the sale of carbon credits from reforestation could offset the entire cost of project. With relevance to the dugong, the opportunities for “blue carbon” were considerable, with mangrove, salt marsh and seagrass all having significant levels of carbon storage.

83. The Recôncavo Carbon and Livelihoods Initiative, Bahia, Brazil, provided another example of how a multifaceted approach, combining direct investment in improved household energy use with repeat access to affordable credit, for example through a conservation lending trust, could encourage responsible community-level biodiversity management. Using an adaptation of the environmental Kuznets curve in relation to the income elasticity of deforestation, he showed how livelihood support could have a positive effect on environmental protection. In that way, a direct link could be forged between low-impact livelihoods and investment in biodiversity, by combining microfinance with environmental stewardship. The sale of carbon credits generated by retaining forested land had financed the entire project. The concept clearly had application to the conservation of dugongs.

12.5 Presentation: Case study on addressing fisheries impacts and lessons learnt from Baha California

84. Introducing his presentation, Mr. Hoyt Peckham, Grupo Tortuguero/Pro Peninsula, drew attention to extensive research that had been undertaken, mostly on fishery interactions with turtles and cetaceans, on means of catching fish without endangering megafauna, including through use of selective signalling, acoustic pingers, magnetic fields and differences in the way fish and megafauna responded to behavioural cues. Increased gillnet selectivity – making nets shorter, positioning them lower, making them out of weaker or smaller mesh – had been shown to be helpful in reducing bycatch of loggerhead turtles.

85. He went on to describe a “conservation mosaic” approach to a case study in Mexico in a poor coastal area of isolated villages where fisheries were the major employer but fishery organization was weak, stocks were declining and there was a lack of management and enforcement of regulations. The area was home to a significant population of loggerhead turtles, which nested in Japan and migrated across the North Pacific to Mexico as juveniles to reach maturity, a process that took some 30 to 50 years. A major foraging ground for the juvenile turtles off the coast of Baha California coincided with a groundfish fishery using gillnets with high mortality of turtles as bycatch. Activities to conserve the turtles had focused on raising awareness among fishers, partnering with them to assess bycatch and develop solutions whilst empowering them to augment sustainability. Fishers had worked alongside observers to extrapolate data to assess mortality, identify turtle hotspots and track fish stocks. Strategic communication activities had been undertaken to generate locally resonant media to convey the crucial message that the future of loggerheads lay in the hands of local fishers. One of the key changes was to fund the use of hook-and-line fishing gear in lieu of gillnets, coupled with improved catch handling and refrigeration. The results were a complete absence of loggerhead turtles as bycatch, and increased value of the fishery through targeting higher-value fish species and better handling and marketing.

86. He provided an overview of a multi-stakeholder bycatch mitigation workshop that had been held in Kobe, Japan, from 22 September to 5 October 2010, at which representatives of fisheries from Japan and Mexico, government, net manufacturers and non-governmental organizations had tested nine modifications to poundnets in a competitive experiment that had elicited significant media coverage. In closing, he suggested that when developing similar initiatives for dugong conservation, it would be important to identify bycatch hotspots, select priority conservation sites, identify potential incentives and interventions with the participation of fishers and non-governmental organizations, and conduct bycatch experimental research to tailor interventions to conservation needs.

87. Following the presentation, Ms. Marsh drew attention to published experimental trials conducted using two types of acoustic pingers, which had yielded no change in dugong behaviour. She suggested that the biggest challenge of experimenting with nets to reduce bycatch was that in most cases the incidence of dugong bycatch was very low, making it extremely difficult to obtain statistically significant results. She said that the Great Barrier Reef Marine Park Authority in Australia was working with fishers on the development of gillnets that were specifically designed to avoid bycatch of dugongs; it had been necessary, however, to test the nets on other megafauna due to the low incidence of dugongs. She said that trials to demonstrate the effect of pingers on dolphins had been conducted in the South-East Indian Ocean, but results had been inconclusive owing to the low number of dolphins in the area. She drew attention to the political pressure exerted to maintain the lucrative pinger industry regardless of the lack of the equipment’s effectiveness in reducing bycatch.

88. Responding to a question regarding the consequences of more selective fishing techniques, Mr. Peckham spoke of the importance of better control of fisheries to bring them closer to sustainability; the optimal means of doing that, he suggested, was to privatize them and establish mechanisms such as

quotas. He stressed that there was considerable potential for leveraging funds to address bycatch and the sustainability of fisheries through interest in megafauna conservation.

12.6 Presentation: Cash incentives for endangered marine species conservation, United Republic of Tanzania

89. Ms. Lindsey West, coordinator of a non-governmental organization called Sea Sense, gave a presentation on cash incentives for endangered marine species conservation in the United Republic of Tanzania, in which she described dugong conservation activities in the Rufiji River delta and Mafia Island areas. She said that the delta represented the last dugong stronghold in the area and the island was an important site for sea turtle nesting. Her organization had been working with the local community to promote a scheme whereby community members received an incentive payment for reporting turtle nest locations and a “hatching incentive”, the amount of which depended on the number of hatchlings to reach the sea, but usually totalled between \$12 and \$15 per nest, offsetting the value of turtle meat sale.

90. The programme had enjoyed considerable success since its inception in 2001, at which time over 80 per cent of sea turtle nests were poached; at present, less than 3 per cent of turtle nests were poached. Over 2,500 nests had been monitored and protected and more than 170,000 sea hatchlings had reached the sea. Underscoring the need for community involvement to ensure the success of such incentive schemes, she said that they were controversial because they did not necessarily encourage long-term behaviour change; if the funding for cash incentives ran out, communities returned to their old ways. She said that the programme provided cash incentives to encourage the release of live dugongs from nets and the surrender of any dead dugongs, which were used for genetic sampling and for gathering morphometric data. The scheme prevented the sale and consumption of dugong meat, enhanced education and awareness, and provided access to genetic samples. It was used in coordination with a number of other tools, such as spatial and temporal closures and educational programmes, for species conservation.

91. Responding to questions, Ms. West said that her organization offered a cash incentive of the equivalent of around \$250 for a dead dugong specimen. Although the scheme had been extremely useful in turtle and dugong conservation, she expressed the view that cash incentives did not represent a long-term conservation strategy; intense communication, awareness-raising and outreach were required to change attitudes and patterns of behaviour.

92. A number of representatives expressed concern that cash incentives might cause dugongs to be killed rather than enhance their conservation. One representative drew attention to an initiative in his country that provided cash incentives to people who released live dugongs or anonymously identified others catching dugongs and selling their meat so that they could be prosecuted.

12.7 Exercise: Application of management tools to different scenarios

93. Ms. Marsh invited participants to reassemble into the same six groups (as for agenda item 12.1) and reconsider the advantages and disadvantages of incentives and area closures in the light of the presentations given. She then invited participants to explore the various management options highlighted during the presentations on the basis of four different scenarios. She provided each of the six groups with a card detailing on one side the particular scenario, and on the other a suggested management toolbox.

Hypothetical situation number 1

94. *Situation:* a very impoverished community with an extremely viable dugong population threatened by gillnetting. An industrialist was interested in investing in an industry that purportedly had no impact on dugongs in an area with a population of 10,000 people, and was ready to donate some \$100,000 over a five-year period to dugong conservation. The group was asked to describe how they would use the donation and additional measures they would implement if the contribution was increased to \$500,000 over the same five-year period.

95. *Group recommendations:* The group was of the view that the main priority was education to enhance understanding of the importance of the dugong and the harmful nature of gillnetting, and to demonstrate options for alternative means of fishing and earning a livelihood. A concerted education and awareness-raising programme was required to teach the local community about the crucial role of protected areas, followed by training on alternative livelihoods and enforcement of protected areas. With a budget of \$500,000, the group proposed that a management plan for protected areas should be developed,

including training for local community members and further engagement of the community through the appointment of a community warden to work with park management in enforcement.

Hypothetical situation number 2

96. *Situation:* a small population of 100 dugongs threatened by gillnetting living in a lagoon in a highly developed country with existing legislation. It was important to maintain livelihoods and protect dugongs. It was necessary, therefore, to put an end to gillnetting, including through the promotion of alternative fishing gear, and to increase awareness and educate the local community. The group was asked to consider which management options would be appropriate to explore with key stakeholders in an effort to conserve dugongs in the lagoon. The group was also to assume that a total budget of up to \$500,000 over five years was available.

97. *Group recommendations:* Group 2.1 suggested that one of the principal activities would be to identify key persons who were respected by the community and enlist them in raising the awareness of the local community, including fishers, on the importance of dugongs and alternative livelihoods. A social and economic study of the area would be required, including an overview of potential economic losses if gillnetting was halted. Local fishers would be invited to explore alternative livelihoods; possible relocation to areas where better opportunities existed; and sustainable use of resources, such as ecotourism. Fishers who chose alternative livelihoods would receive training in their chosen field of work and assistance or training to develop and market their products. Financial incentives for alternative livelihoods for groups and families would be identified. Awareness-raising and educational activities would be carried out in schools on a continuous basis, including convincing pupils' parents engaged in gillnetting to desist from such practices.

98. Group 2.2 said that, faced with a population of fishers from highly developed countries, it was important to focus on long-term education and awareness-raising activities together with training on fishing gear modifications and the provision of incentives to facilitate such modifications. A system of permits would be established to allow fishers with gear other than gillnets to fish in the area. A multi-stakeholder steering committee, including members from neighbouring countries to which dugongs migrated, would be established to develop a five-year plan with measurable indicators and outputs, to facilitate adaptive management and information exchange between scientists, managers and the local community.

Hypothetical situation number 3

99. *Situation:* a relatively small population of dugongs (several dozen to a few hundred) in a bay straddling the borders of two countries with considerable existing conservation management. The local communities were poor. The dugongs moved between the bay and other habitats and the most significant threat to them was gillnet fishing. There was some tourism. The aim was to propose management options with a budget of \$500,000 over a five-year period.

100. *Group recommendations:* Group 3.1 said that consultation and coordination between the two countries was paramount. Capacity-building was required for fishers and legal experts drafting laws. Education and awareness-raising for the local community was key to enhancing dugong conservation and enforcement of laws. Background research was required for increased understanding of the behaviour and movements of dugongs and other related marine resources in the area. Incentives were needed, including microfinancing and loans, to introduce local community members to alternative sources of livelihood.

101. Group 3.2 said that cooperation on dugong conservation between the two countries was crucial and it was important that enforcement measures were well understood and aligned in both countries. Consultation was required with the respective communities in the two countries for increased understanding of the challenges to the dugong population and ways to reduce dugong mortality. Owing to the co-location of fisheries and dugongs, an area closure was appropriate in tandem with some means of compensation for the local community. The livelihoods of local fishers could be improved through the provision of microfinancing opportunities and introduction to alternative livelihoods and fishing gear.

Hypothetical situation number 4

102. *Situation:* A remote village in a coastal area of a developing country with a dugong population that moved between that area and a developed country. There was a lack of institutional framework and the local community, including fishers, lived in conditions of extreme poverty. The group was asked to

consider what management options were appropriate to explore with key stakeholders in an effort to conserve dugongs in the waters of the developing country. A total budget of up to \$100,000 over five years was assumed. The group was also asked to consider how their recommendations would change if the developed country increased the budget to \$500,000 over five years.

103. *Group recommendations:* Coordination between the developing and the developed country was crucial. Dependence on fisheries could be reduced by promoting alternative livelihoods. To further local development, any capital should be deposited in a bank and the interest accrued used for activities such as microfinancing and incentives to stop gillnetting, and the promotion of alternative fishing gear. Tools should be developed that were appropriate to the strong cultural values held by the local population in a developing country. Education and awareness-raising for fishers was a key.

12.8 Presentation: Selection criteria for pilot projects

104. Mr. Woodley gave a presentation on selection criteria for pilot projects. He recalled that item 8 on the agenda had considered the Small-Scale Funding Programme and its proposed activities for 2010–2011. The draft application guidelines for a grant under that programme had outlined the criteria for prioritization of proposals. The purpose of the current presentation, he said, was to offer some suggestions on further criteria that might apply to the selection of incentive-based pilot projects for dugong conservation, many of which reinforced the criteria that were contained in the application guidelines. The suggestions had emerged from the technical workshop held in Brisbane on 30 and 31 August 2010.

105. The main proposed objectives of pilot projects, he said, were to test financial incentive tools at relevant sites in order to enhance dugong conservation through changes in fishing practices while improving the well-being of the community; and to apply lessons learnt to other locations, where appropriate. Detection of change was an important component, but detecting statistically significant changes in dugong populations would be virtually impossible even with large populations and over long time scales. Detecting changes in human behaviour towards fishing practices that protected the dugong would be easier in the short term. Further elements to consider in developing pilot projects were related first to dugong conservation, including population size and density, defined area, health of habitat, regional significance of site, degree of overlap between dugong habitat and artisanal fisheries, fishery characteristics, potential benefit to conservation of other species, and possible non-fishery impacts; and second to governance, including support of non-governmental organizations for the project, capacity for enforcement and education, track record of project managers, community capacity and cohesion, and transboundary cooperation. Finally, he mentioned the need for results to be measurable and potential for private funding as other criteria.

106. In the ensuing discussion, one representative sought clarification on the application guidelines for small-scale projects, specifically the amount of weight that would be attached to such criteria as community involvement, given that projects in certain remote locations might not involve communities, and whether additional emphasis needed to be given in project formulation to other criteria, such as regional cooperation, in order to make up for that deficiency. A representative of the Secretariat said the application guidelines were generic and each application would be judged on its merits, taking into account the priorities of the entity making the application.

12.9 Consideration of recommendations on management tools

107. Introducing the item, Ms. Kwan drew the attention of the meeting to document DM/SS.1/Doc.11, on tools and opportunities for making progress in dugong conservation. She said that the expert panel meeting in Brisbane, Australia, 30 and 31 August 2010, had made some broad recommendations on management tools that they wished to place before the current meeting for its endorsement. The recommendations were as follows: development of a shortened version of the standardized Dugong Catch/Incidental Catch Survey Tool, to enable updating of key items of information on a regular basis, following the detailed baseline survey; publication of a plain language information and resource book on dugongs and their conservation in relevant Convention on Migratory Species languages; identification of key partners for funding, including with regard to co-investment and new sources of funding; documentation of successful practices in dugong conservation; evaluation of successful conservation awareness programmes and assessment of their application to dugong conservation; and early implementation of pilot projects in order to maintain the momentum generated by the current meeting.

108. In the ensuing discussion, a representative invited the expert panel to consider the existing monitoring programmes and activities that were currently being applied under the aegis of various regional organizations, for example in West Asia, and to explore opportunities to coordinate with those programmes and undertake parallel studies. Another representative asked how the Secretariat could assist countries that were undertaking joint transboundary surveys. In response Ms. Kwan said that the Secretariat had a good working model that had been applied in other areas, for example in South-East Asia, whereby the Secretariat worked with a non-governmental organization that could facilitate administration and disbursement of the fund.

109. One representative welcomed the idea of a short version of the questionnaire and suggested that efforts be made to harmonize that tool across regions and subregions so that standardized data could be generated, allowing comparison of results. Ms. Kwan said that the role of the Secretariat would be to provide such a questionnaire, leaving it to the subregions to implement it as they wish, and providing technical support if the subregions wished to customize the tool.

110. Concluding the agenda item, the signatory States agreed to endorse the recommendations on management tools put forward by the expert panel.

13. Consideration of the need and options for a technical advisory group

111. Introducing the item, Ms. Kwan drew the attention of the meeting to document DM/SS.1/Doc.12, on consideration of the need and options for a technical advisory group. Conservation of dugong populations, she said, was becoming more challenging and complex, and establishment of a technical support and advisory group, along the lines of the Advisory Committee of the Memorandum of Understanding on the Conservation and Management of Marine Turtles and Their Habitats in the Indian Ocean and South-East Asia, could help signatory States implement the dugong Memorandum of Understanding. While there was no explicit call in the Memorandum of Understanding to establish such a group, paragraphs 6 and 7 referred to involvement of technically qualified persons and organizations, and cooperation with recognized experts. The dugong expert community was small compared to the turtle community, and formulation of a technical advisory group would increase the capacity of the Secretariat to coordinate technical support for signatory States, utilizing existing expertise in range States and supplementing it through engagement of external advisers.

112. There were two main suggestions for obtaining technical advice that would complement each other: compiling a list of registered technical experts, and formulating a formal advisory group. Thus far the Secretariat had employed the former option, seeking advice on specific issues on an ad hoc basis, and that approach had been employed in building the survey questionnaire and developing the toolbox. She noted with appreciation the technical support that had been forthcoming from the expert community in those and other areas. In conclusion she drew the attention of the meeting to the draft terms of reference for a possible technical advisory group, annexed to document DM/SS.1/Doc.12.

113. Mr. Abdessalaam added that a formal advisory group would need to meet at regular intervals, adding to cost, while a list of advisers would offer flexibility in responding to specific demands for expertise among signatory States. Mr. El Kabiri pointed out that appointment of a formal group would require an amendment to the existing text of the Memorandum of Understanding, to be undertaken at a future meeting.

114. In the ensuing discussion, several representatives noted the value that had been added to the dugong conservation programme by the involvement of technical advisers, and a comprehensive list of such experts, grouped by subregion, would be of great benefit to countries in engaging the most accessible experts in particular areas of expertise. One representative said that exchange visits by PhD students would be a cost-effective method of sharing expertise and building capacity.

115. One representative, supported by others, suggested that a useful way forward would be for the Secretariat to undertake, in consultation with technical experts, a full analysis of the advantages and disadvantages of both options, reporting back at the next meeting of the signatory States.

116. Concluding the item, the signatory States agreed that the Secretariat should continue, until the next meeting, to engage experts for specific purposes on an ad hoc basis, as at present; and should undertake a survey, in consultation with technical experts, on the advantages and disadvantages of the two options laid out in document DM/SS.1/Doc.12, reporting back on the matter at the next meeting of signatory States.

14. Adoption of draft meeting report template

117. Ms. Kwan presented the draft meeting report template, as prepared by the report writers. The final report would be posted on the Memorandum of Understanding website, along with presentations and statements made at the meeting.

118. The signatory States adopted the draft meeting report template.

15. Next meeting of signatories

119. Ms. Kwan said that the next meeting of signatory States would be in 2012, and asked if there were any offers to host the meeting. The representative of the United Arab Emirates said that his country would be happy to host the meeting, should there be no other offer presented.

16. Any other business

120. There was no other business.

17. Closure of the meeting

121. Following the customary exchange of courtesies, the meeting closed at 3 p.m. on Wednesday, 6 October 2010.

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* Signed MoU on 3 October 2010;
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*** Signed MoU on 9 September
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