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Trainer's Guide

Coastal and Marine Biodiversity Conservation and Protected Area Management

For Field-Level MPA Managers

Using participatory training methods

Imprint

Trainer's Guide
Coastal and Marine Biodiversity Conservation and Protected Area Management for Field-Level MPA Managers
Using participatory training methods

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Trainer's Guide

Coastal and Marine Biodiversity Conservation and Protected Area Management

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Foreword

HEM PANDE, IAS
Special Secretary

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Foreword

India's coastline and seas hold many biological treasures. Dense mangrove forests of Sundarbans, the world's largest congregation of nesting turtles in Odisha, beautiful seagrass beds in Palk Bay, enigmatic sea cows of Gulf of Mannar, majestic whale sharks in the Gulf of Kachchh and some of the world's most charming and striking coral reefs in east, west coasts and islands are but only few examples of India's coastal and marine biodiversity. Besides being rich repositories of biological diversity, coastal regions are home to large proportions of India's human population. With a coastline of more than 7500 km spanning 13 states and union territories, India is endowed with a diversity of coastal and marine ecosystems, which needs to be protected for continuous and sustainable supply of ecosystem services.

One of the most effective means of protecting coastal and marine biodiversity is through the establishment and management of coastal, Marine Protected Areas (MPAs) through participatory approaches. Capacity development of the MPA managers, local government bodies, NGOs and local community is essential to enhance knowledge, skills and values towards developing approaches for sustainable and effective management of coastal and marine biodiversity.

The Governments of India and Germany have joined hands to implement project titled 'Conservation and Sustainable Management of Existing and Potential Coastal and Marine Protected Areas'. The project is being implemented by GIZ in partnership with MoEFCC. One of the key initiatives under the Human Capacity Development component of the project is facilitating the training institutions of the forest, fisheries and media sectors. In this context, a curriculum development process was carried out under the project to develop the training material, which addresses the competencies required by the field-level MPA managers in the present context.

The training curriculum on "Coastal and marine biodiversity conservation and protected area management" is unique in terms of promoting three dimensional competence development at the individual level, i.e. knowledge, skills and attitudes. A participatory approach to training enables efficient learning by the participants. The field-level experience and knowledge of the protected area managers is well shared and appreciated as an important contribution to the joint learning of participants. An important feature of this trainer's kit is that it contains a modularized curriculum, with eight modules as follows:

Module 1: Introduction to Coastal and Marine Biodiversity and Ecosystem Services
Module 2: Coastal and Marine Biodiversity and Ecosystems Services in the Overall Environment and Development Context
Module 3: Mainstreaming Coastal and Marine Biodiversity Conservation Concerns into Overall Development and Environmental Planning
Module 4: Coastal and Marine Protected Areas and Sustainable Fisheries Management
Module 5: Governance, Law and Policy Framework for Coastal and Marine Biodiversity
Module 6: Assessment and Monitoring of Coastal and Marine Biodiversity: Field Learning Journal
Module 7: Effective Management Planning of coastal and marine protected areas
Module 8: Communicating Coastal and Marine Biodiversity Conservation and Management Issues

This ninth document of the trainer's kit, "Trainer's Guide" facilitates trainers in delivering the contents of the above eight modules, using innovative participatory training methods, including simulations, role-plays and games. The kit also contains a Pen drive with soft copies of modules as well as PowerPoint presentations and handouts.

The training material was pilot tested by GIZ and WII during January- February 2015 and received extremely well by the participants and trainers.

I am happy to release this training material during the United Nations Decade on Biodiversity and on the occasion of UN-IPBES Capacity Building Forum Meeting in Dehradun, India. I congratulate GIZ and WII for developing a state-of-the-art training material with participatory training methods, which will be a benchmark in the capacity development efforts being undertaken for MPA managers globally. I wish to put on record the diligent efforts put by my colleague Dr. J. R Bhatt, Advisor, MoEFCC for guiding and mentoring the team during this entire process. I wish the project success in future training endeavors. I look forward towards adoption of this curriculum and training material by all relevant training institutions engaged in the coastal states of India.

17.10.15

(Hem Pande)

Preface and Acknowledgements

The concept and outline of this Trainer's Guide were conceived and developed over a period of one year. We would like to thank all those who contributed to establishing the framework, developing the content, conducting a pilot test and revising and publishing this material.

The curriculum was developed on the basis of the results of a capacity needs assessment (CNA) study that was carried out by this cross-sector team as a part of the project between October 2013 and March 2014: Dr. V.B. Mathur (Director, Wildlife Institute of India (WII); Dr Neeraj Khera, Senior Advisor, GIZ; Dr. K. Sivakumar, Dr. J.A. Johnson and Dr. Gopi G.V. (WII); Mr. Peter Bank (capacity building expert, Germany); Mr. Joydeep Gupta, Mr. Darryl D'Monte, Mr. S Gopikrishna Warrier, Mr. Sanjay Dave, Dr. Yugraj Yadava (Bay of Bengal Project-BOBP), Mr. Sharif Uddin -BOBP, Mr. Rajdeep Mukherjee - BOBP and Ms Fahmeeda Hanfee - BOBPWe are also thankful to all the individuals and institutions who provided their inputs to this study.

The curriculum framework and the modularized structures for different target groups of decision-makers and MPA managers were developed in consultation with an accomplished team of experts from the forest, fisheries and media sectors at a Curriculum Development Dialogue organized by GIZ and WII in July 2014. The dialogue was attended by 20 participants from government organizations, state forest departments, international organizations and research organizations and managers of marine protected areas (MPAs), marine biologists and capacity development experts, representing the forest, fisheries and media sectors. The curriculum development dialogue concluded with the recommendation that a course of about 4 weeks' duration on coastal and marine biodiversity and protected area management be conducted for field-level MPA managers. An outline of the curriculum was developed and a list of experts who could contribute to the curriculum was drawn up at the dialogue. The training material was put together by GIZ and WII over six months on the basis of the curriculum framework to address the competencies required by field-level MPA managers in today's context. We would like to thank all the authors, contributors, editors and reviewers for their contributions.

The pilot testing was conducted between 12 January and 6 February 2015 at a course organized jointly by GIZ and WII at the Indian Institute of Scuba Diving and Aquatic Sports (IISDA), Tarkarli, Malvan, Maharashtra. The course was attended by Range Forest Officers and Foresters from Andhra Pradesh, Andaman & Nicobar Islands, Lakshadweep, Maharashtra and Tamil Nadu. The course was appreciated greatly by the participants as well as the trainers, experts and external resource persons. Four participants and five trainers successfully qualified to become PADI open water scuba divers, and the others qualified as divers. We would like to thank IISDA for facilitating the pilot testing of this course in the most enabling conditions. We would like to thank the officials of the forest departments of the coastal states who sent their Range Officers and Foresters to participate in the training course and supported further refinement of the material.

Participatory training methods, which form the key delivery method, were tested and revised on the basis of two events that need special mention and for which the authors are grateful.

The first of these events was a training-of-trainers workshop organized during 6–7 August 2014 at Gandhinagar, Gujarat in partnership with the Gujarat Forest Department. The participants at this workshop included Mr. A.C. Sampat (Director, Gujarat Ecology Commission); Mr. G.I. Naik, IFS, Mr. A.M. Chauhan, Mr. B.D. Prasad and Dr. Bipin Khokhariya (Gujarat Forest Department); Ms Avani M. Rushi (sociologist, BCRLIP, GLC Sasan Gir); Dr. D. Adhavan (marine scientist, Marine National Park, Jamnagar); Ms Kajal Singh (Gujarat Ecology Commission); Mr. L.J. Parmar (DFO, Porbandar); Mr. M.M. Bhalodi (DFO, Marine National Park, Jamnagar); Mr. N.S. Yadav, IFS (CCF Wildlife Crime); Dr. Pradeep Mehta (Earthwatch Institute, Gurgaon); Dr. Pradnya Sawant (Gujarat Ecology Commission); Dr. Pratyush Patankar and Dr. Vivek Vegda (Gujarat Biodiversity Board); Mr. P.T. Shiyani (RFO, Marine

National Park); Mr. R.D. Kamboj, IFS (CCF, Marine and National Park); Dr. Richa Pandey (GIPL); Mr. R.L. Meena, IFS (CCF Wildlife, Junagarh); Dr. Sandeep Kumar (DCF, Sasan Gir, Gujarat); Mr. Sanjay Dave (development journalist); Mr. S.J. Pandit (Deputy Conservator of Forests, FCA); Mr. S.P. Sisodiya, IFS (Director, LeoGen Project); Ms Sweta Rajpurohit (Manager, GEER Foundation); Mr. Uday Vora, IFS, (Principal, Gujarat Forest Training College); and Mr. U.R. Pandya, IFS (CCF Wildlife).

The second event was another training-of-trainers workshop conducted during 11–13 September 2014 at Mumbai. The participants included Mr. Stefan Bannach; Ms Manali Shah; Dr. Anandi Mehra (freelance consultant/advisor, Shimla); Mr. Anant Pande (Senior Research Fellow, WII); Dr. Dharmendra Verma (Director, Forest Education, MoEFCC); Dr. Meera Iyer (faculty member, CASFOS, MoEFCC, Dehradun); Mr. N. Vasudevan, IFS (Chief Conservator Forest & Head—Mangrove Cell, Forest Department, Maharashtra); Mr. Naren Pasupalati (Project Scientist, National Centre for Sustainable Coastal Management (NCSCM), Chennai); Mr. Nitin H. Kakodkar (Chief Conservator of Forests (Education and Training), Forest Department, Mumbai); Dr. Pragati Bhalla (faculty member, Development Communication, Jamia Millia Islamia University, Delhi); Ms Priya Narayanan (Project Associate/Scientist, NCSCM, Chennai); Dr. Sarang Kulkarni (marine biologist & PADI open water scuba instructor, Pune); Dr. Seema Das (Associate Professor, St. Xavier's College, Mumbai); Mr. Sanjay Mali (DFO, Mangrove Cell, Forest Department, Mumbai); Dr. Senthil Kumar, IFS (faculty member, Indira Gandhi National Forest Academy (IGNFA), Dehradun); and Ms Sangeetha Rajeesh (communications specialist, MSSRF, Chennai).

We are thankful to Mr. Kumaran Sathasivam (Palladium Documentation, Chennai) for helping us with the copy editing and proof reading of this Trainer's Guide.

The first author is also thankful to the colleagues at the Indo-German Biodiversity Programme for all the support and encouragement provided with technical, administrative and operational matters by Mr. Sanjay Nikalje, Mr. P.D. Francis, Ms Madhuri Negi, Ms Clara Mokry, Ms Pratishtha Chhetri and Mr. Sarthi Gupta.

The overall framework of the CMPA Project comes from a long-standing cooperation between India and Germany in issues related to environmental conservation and biodiversity conservation. The authors are thankful for the overall guidance received from Mr. Hem Pande (Additional Secretary, MoEFCC) and Dr. J.R. Bhatt (Advisor, MoEFCC). This guidance was invaluable and provided the very foundation for the capacity development measures being implemented for the forest, fisheries and media sectors through this project. The authors wish to express their gratitude to Dr. V.B. Mathur (Director, WII) for providing advice and overseeing the entire process of curriculum development. This work would not have been possible without the encouragement and support received from Mr. Edgar Endrukaitis (Director, Indo-German Biodiversity Programme) and Dr. Michael Vakily (Team Leader, CMPA Project), who shaped and steered a truly participatory approach for capacity development in the CMPA Project.

Trainer's guide navigator

This trainer's guide facilitates delivery of the modules of 'Coastal and Marine Biodiversity and Protected Area Management for Field-Level MPA managers by trainers and faculty members of training institutes, research organizations and other institutions offering training courses for managers of protected areas and conservation planners.

This guide serves as an interactive working document. It comprises flexible modules that can evolve with use and experience. The training modules and methods can be customized to suit the learning objectives, audience, availability of time, availability of resources and other factors. It is also possible to include new case studies, relevant reading material or training activities as these become available.

The guide consists of three sections:

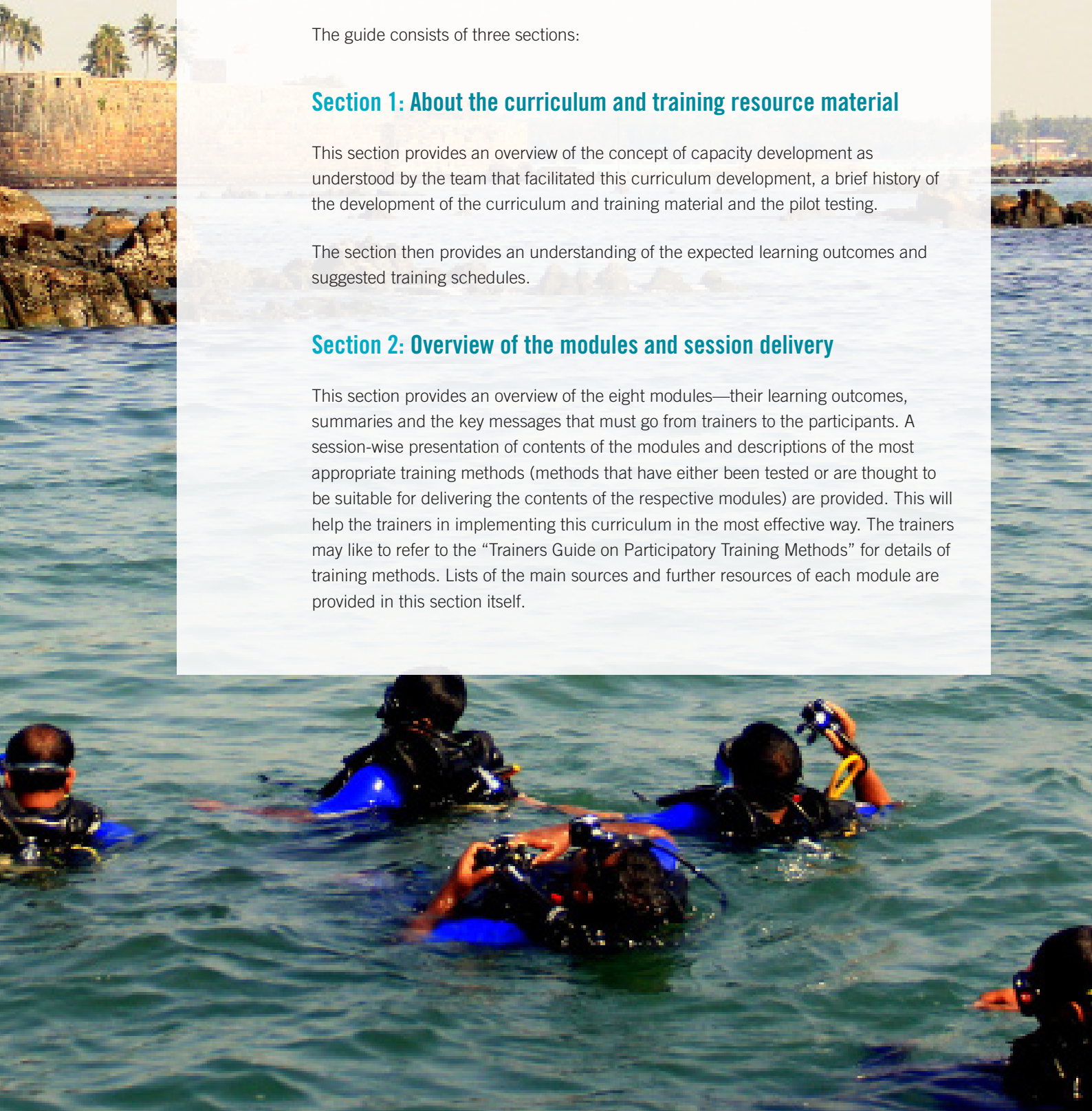
Section 1: About the curriculum and training resource material

This section provides an overview of the concept of capacity development as understood by the team that facilitated this curriculum development, a brief history of the development of the curriculum and training material and the pilot testing.

The section then provides an understanding of the expected learning outcomes and suggested training schedules.

Section 2: Overview of the modules and session delivery

This section provides an overview of the eight modules—their learning outcomes, summaries and the key messages that must go from trainers to the participants. A session-wise presentation of contents of the modules and descriptions of the most appropriate training methods (methods that have either been tested or are thought to be suitable for delivering the contents of the respective modules) are provided. This will help the trainers in implementing this curriculum in the most effective way. The trainers may like to refer to the "Trainers Guide on Participatory Training Methods" for details of training methods. Lists of the main sources and further resources of each module are provided in this section itself.



Section 3: Tools and handouts

This section consists of the resources for use during and after the training. These include a comprehensive glossary, detailed case studies, handouts, simulation material, references and other material. Trainers can customize them and print them out for their own use or for the participants.

The trainers are, however, encouraged to explore new methods and customize the existing methods as and when required to enhance the learning experience of the MPA managers. The section 'How to Take Feedback' and the sample feedback forms in the annexure will help the trainers test the training methods and adapt these according to the MPA managers' feedback and their own experience.

SECTION 1

About the curriculum and training resource material

This section provides an overview of capacity development as understood by the team that facilitated the development of this curriculum, a brief history of the development of the curriculum, the training material and the pilot testing.

The section then provides an understanding of the expected learning outcomes and suggested training schedules.

1.1 Why develop a curriculum on coastal and marine biodiversity?

Capacity development for sustainable and effective management of coastal and marine biodiversity and protected areas

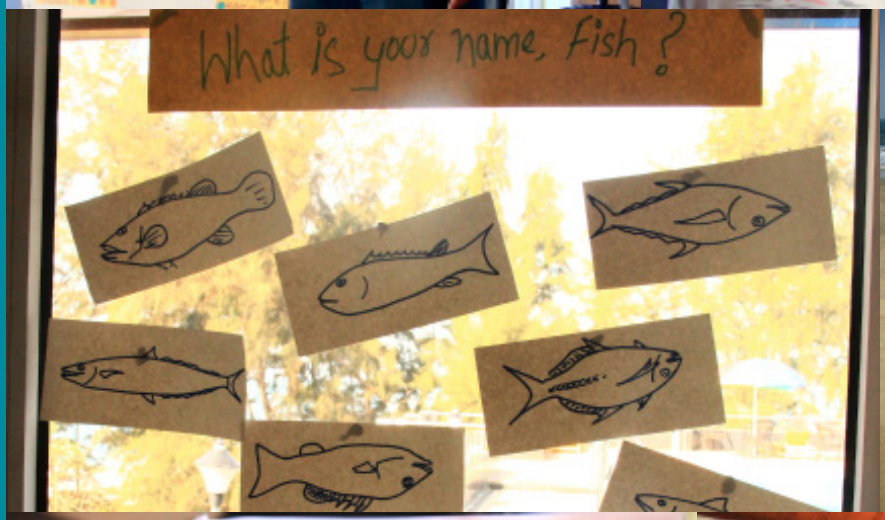
In coastal areas, a major determinant of well-being and livelihood security is the availability of marine and coastal biodiversity resources and access to these resources. Loss of biodiversity and the resulting loss of ecosystem services, therefore, have far-reaching impacts on livelihoods and the overall well-being of coastal communities.

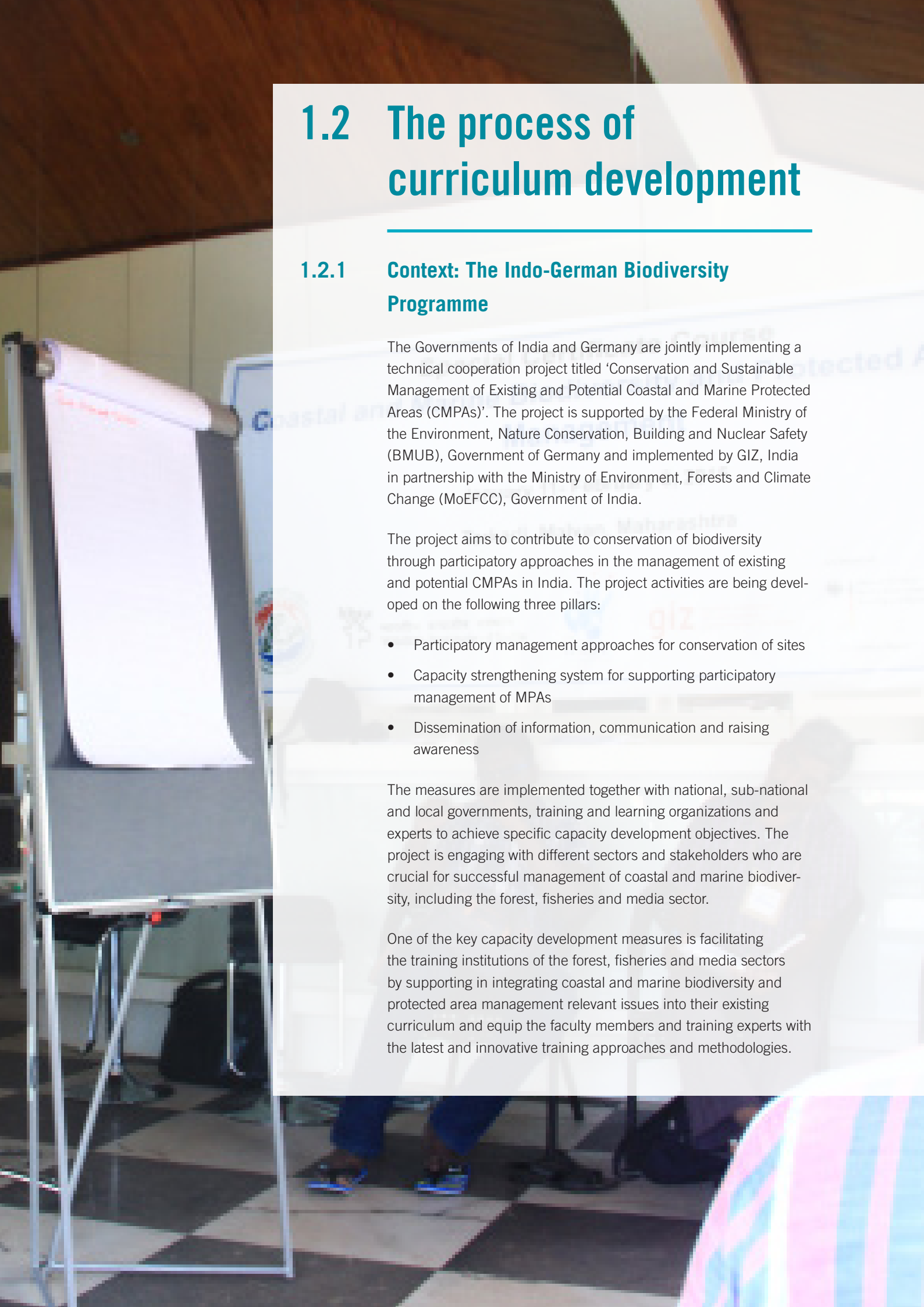
One of the most effective means of protecting marine and coastal biodiversity is through the establishment and management of marine and coastal protected areas (MPAs) and community-involvement in managing the coastal and marine ecosystems.

A holistic capacity development system for the MPA managers, addressing their knowledge, skills and values, is key to developing approaches for sustainable and effective management of coastal and marine biodiversity.

Capacity development is the process of developing capacities of individuals and shaping joint learning processes such that the individuals are enabled to achieve sustainable results within their own systems of reference.

Capacity development facilitates change among people in three dimensions: knowledge, skills and values/attitudes. A combination of traditional and innovative capacity development measures is required to achieve the objectives.


What is your name, Fish ?



1.2 The process of curriculum development

1.2.1 Context: The Indo-German Biodiversity Programme

The Governments of India and Germany are jointly implementing a technical cooperation project titled 'Conservation and Sustainable Management of Existing and Potential Coastal and Marine Protected Areas (CMPAs)'. The project is supported by the Federal Ministry of the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), Government of Germany and implemented by GIZ, India in partnership with the Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India.

The project aims to contribute to conservation of biodiversity through participatory approaches in the management of existing and potential CMPAs in India. The project activities are being developed on the following three pillars:

- Participatory management approaches for conservation of sites
- Capacity strengthening system for supporting participatory management of MPAs
- Dissemination of information, communication and raising awareness

The measures are implemented together with national, sub-national and local governments, training and learning organizations and experts to achieve specific capacity development objectives. The project is engaging with different sectors and stakeholders who are crucial for successful management of coastal and marine biodiversity, including the forest, fisheries and media sector.

One of the key capacity development measures is facilitating the training institutions of the forest, fisheries and media sectors by supporting in integrating coastal and marine biodiversity and protected area management relevant issues into their existing curriculum and equip the faculty members and training experts with the latest and innovative training approaches and methodologies.

WII has a mandate to train Indian Forest Service officers, state forest service officers, and other key stakeholders such as the Coast Guard and Customs and has recently initiated a one-week refresher course exclusively addressing issues related to integrated management of coastal and marine biodiversity and targeting senior forest officials. However, there is a need for short-term courses that will strengthen the capacity of officials/staff members of the forest and fisheries sectors at various levels to manage CMPAs in India sustainably and effectively.

1.2.2 Capacity needs assessment

The first step in supporting the capacity-development process of the stakeholders relevant to conservation and sustainable management of coastal and marine biodiversity and protected areas is to assess what key capacities already exist and what additional capacities might be required by specific stakeholders to contribute to the project objectives. Capacity needs assessment (CNA) was planned, organized and executed under the human capacity development (HCD) component of the project.

The process of CNA was truly participatory and cross-sector in its approach, with the involvement of three key sectors of CMPAs in India, namely, the forest, fisheries and media sectors. Institutions as well as individual experts participated in the assessment, which was carried out to identify capacity needs at the organizational and individual levels. At the individual level, capacities were assessed in the knowledge, skills and values dimensions. A special focus of this assessment process was identifying capacity needs for enhancing cross-sector and cross-stakeholder cooperation. Three strategic goals and 12 activity areas were identified on the basis of the findings of the CNA to implement the HCD measures of the project.

A cross-sector brainstorming workshop brought a common understanding of the forest, fisheries and media sectors regarding important issues in coastal and marine biodiversity conservation and management.

The study established that concepts and issues relevant to coastal and marine biodiversity need to be integrated into the existing training curriculum of field-level MPA managers and conservation professionals at national and state-level forest training institutions. Further, special courses need to be developed for officers currently serving in coastal and marine areas.

1.2.3 Curriculum development dialogue

A curriculum development dialogue was jointly organized by GIZ and WII in July 2014 to initiate the process of development of a coastal and marine biodiversity curriculum for training managers of protected areas. The dialogue was attended by 20 participants from government organizations, state forest departments, managers of MPAs, marine biologists, capacity development experts, international organizations and research organizations representing the forest, fisheries and media sectors.

A draft curriculum framework, pre-developed by WII and the CMPA project, served as the base document for developing further frameworks for different target groups. A plenary discussion on the base document resulted in refinement of the specific target groups for whom the curriculum and training material needed to be developed. The dialogue reached its first milestone when it identified three target groups for which the curriculum needed to be adapted. These three groups are the following:

Field-level protected area managers, including Range Forest Officers, Foresters and Forest Guards of the coastal states of India.

Management-level protected area managers, including the Chief Conservators of Forests (CCFs), Conservators of Forests (CFs) and Divisional Forest Officers (DFOs) of the coastal states of India.

Decision-making-level protected area managers, including the Principal Chief Conservators of Forests (PCCFs), officials of the Ministry of Environment, Forest and Climate Change (MoEFCC) and other key relevant ministries and Directors of the key training institutions in the forest, coastal, fisheries and media sectors.

The curriculum development dialogue concluded with specific recommendations regarding the competencies to be addressed by future capacity development programmes, a curriculum framework with a modularized structure and proposals relating to the lengths of the training programmes for different targets groups.

Curriculum framework for three target groups

Field level MPA managers (4 weeks / 2 weeks)

It was recommended that the course on coastal and marine biodiversity and protected area management be of about 4 weeks' duration. The first week was to provide an overview of the key concepts and focus on sharing experiences. The second and third weeks were to focus on field-exposure, methods of assessing and monitoring coastal and marine biodiversity, community interactions, etc. The fourth week was to focus on effective management planning of coastal and marine biodiversity and protected areas and on reflecting on good practices and case studies. However, after the first pilot testing, a 10-day course preceded by the SCUBA diving training is being considered as an effective option as well.

Senior MPA managers (IFS officers) (3 weeks, in a phased manner, over a period of 1 year)

It was recommended that the capacity development programme be carried out over a period of 3 weeks, in a phased manner, since it may not be practically possible for senior officers to take out time at once for 3 weeks. The first one-week training will be organized as a field expedition to selected coastal/ marine protected areas to facilitate participants in exploring and understanding coastal and marine ecosystems, and also getting a first hand information of various issues and challenges associated with managing these ecosystems. The second one-week intensive training course will facilitate the participants further developing their conceptual and skill base on coastal and marine biodiversity and MPAs, differences in managing terrestrial and coastal resources, coastal and marine related laws and policies, mainstreaming tools and leadership and communication skills. The third one-week specialized training will be focused on effective management of coastal and marine protected area, where the participants will specialize in developing management planning and effectiveness evaluation of the MPAs.

Decision-makers on MPA management (One day)

It was recommended to organize a one-day dialogue for the senior protected area managers, and decision-makers at the Ministries. The contents of the dialogue may cover key and critical aspects of coastal and marine biodiversity conservation and management effectiveness of CMPAs, the socio-economic issues governing such areas, new approaches to mainstreaming biodiversity into coastal sectors and the International geopolitics and policy environment relevant to the Indian coast.

1.2.4 Pilot testing of the curriculum and draft training material for field-level MPA managers in 2015

The course was pilot tested during 12 January – 6 February 2015, organized jointly by GIZ and WII at the Indian Institute of Scuba Diving and Aquatic Sports (IISDA), Tarkarli, Malvan, Maharashtra.

The course was attended by Range Forest Officers and foresters from Andhra Pradesh, the Andaman and Nicobar Islands, Lakshadweep, Maharashtra and Tamil Nadu. The course was received extremely well by the participants as well as the trainers, experts and external resource persons. Four participants and five trainers successfully qualified to become PADI Open Water Divers, while the others qualified as divers.

1.2.5 Training of Trainers

Two Training of Trainers (ToT) workshops were conducted to create a pool of trainers who are aligned with the approach of the course and are willing to deliver the contents using participatory training methods:

1) 6–7 August 2014, Gandhinagar, Gujarat

2) 11–13 September 2014, Mumbai, Maharashtra

1.3 The curriculum and training resource material explained

1.3.1 About the curriculum

The training material is developed by a competent team of experts drawn from forest, fisheries and media sectors, bringing in a truly cross-sector perspective to the whole process of capacity development. This competencies-based curriculum for field-level MPA managers (Range Forest Officers and foresters) is suitable to be delivered as a special certificate course of one-month duration. However, in its intensive format, it can also be delivered over 10 as well as 3 days duration.

Competence-based curriculum for the field-level MPA managers

The Special Certificate Course uses a competencies-based curriculum with a strong emphasis on field-based exercises using participatory methods of training and learning.

Competencies-based curriculum is a way of approaching professional training that places primary emphasis on facilitating the participants in further developing their competencies, which are required to enable them in performing their jobs more efficiently and effectively. It aims at preparing people more effectively for real workplaces.

The course is intended to enable participants in developing a sound understanding of the concepts and issues related to managing coastal and marine biodiversity, coastal and marine protected areas, the ecological and socio-political context, conservation approaches and legal-policy frameworks of terrestrial and coastal–marine protected areas as well as equip them with the skills needed to conduct assessments and monitoring of coastal and marine habitats and species, prepare field reports and develop operational plans (under supervision) for MPAs based on management effectiveness guidelines.

1.3.2 An overview of the modularized curriculum

Module 1: An Introduction to Coastal and Marine Biodiversity and Ecosystem Services

This module provides the foundation of the course by providing the basic concepts of biodiversity at the genetic, species and habitat levels, focussing on the examples and peculiarities of the coastal and marine ecosystems. An overview of the concept of the ecosystem services and examples of the four types of ecosystem services- provisioning, regulatory, supportive and cultural, are followed by a detailed description of the key coastal and marine habitats and species. The module ends with a discussion on the key differences between the terrestrial and coastal-marine ecosystems.

Module 2: Coastal and marine biodiversity and ecosystems services in the overall environment and development context

This is the most comprehensive and time-intensive module of the course, setting the foundation of the issues of coastal and marine conservation in the overall development context. This module facilitates participants looking into the overall development agenda via Global Sustainable Development Goals, the concepts of sustainability, sustainable livelihoods and its interlinkages with the ecosystem services. The module takes a deeper look into the economic values, and threats to coastal and marine biodiversity and focuses in detail on the climate change and disaster risk reduction and their interrelationship with the coastal and marine biodiversity conservation. To make the learning easy for participants, this module comprises two very interesting training methods—ecological footprint game, and two simulation games on fictitious countries—Bakul, and Ceebano.

Module 3: Mainstreaming coastal and marine biodiversity into overall development and environmental planning

This module provides the conceptual background and introduces the tool for mainstreaming biodiversity. To ensure that biodiversity-related issues and concerns become a part of the larger development planning process in the country, there is a need to incorporate it into policies, strategies and action plan. There is also a need to use science-based tools to understand the impact that projects can have on the environment and ensure that spatial planning incorporates measures for conservation of coastal and marine biodiversity.

Module 4: Coastal and Marine Protected Areas and Sustainable Fisheries Management

This module provides much needed information on the basics of fisheries management, principles and practices of sustainable fisheries management in and around marine protected areas, and on the marine protected areas (MPAs). The modules provides insights into the differences between them and terrestrial protected areas, the categories and types of MPAs and their management systems and an overview of the elements of sustainable fisheries management. This module covers the key issues of fisheries and indigenous communities in the context of MPAs. Apart from providing information on different types of MPAs in India and their locations, the module elaborates benefits of and challenges for MPAs.

Module 5: Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas

This module gives an outline and a brief history of the diverse governance, legal and policy frameworks for managing coastal and marine ecosystems. The contents are presented in two sections. The first section deals with global conventions and guidelines that provide a framework to the maritime countries to draft national policies and legislation for conservation and management of coastal and marine habitats and species. The second section provides an overview of the major policies, law, rules and guidelines in India that relate to coastal and marine biodiversity conservation.

Module 6: Assessment and monitoring of coastal and marine biodiversity and relevant issues

This module has been designed to provide the required information on different coastal and marine ecosystems, critical marine habitats, their importance and assessment. It will also help participants in identification of species found in coastal and marine ecosystems. This will equip them with assessment methodologies of different critical habitats species. This module is delivered through different learning techniques, comprising class room session, and hands-on assessment practice in contained pool as well as open-water conditions. Hands on experience will be provided on all important topics covered in this module for better understanding of the coastal and marine habitats and the associated species. As a part of this module, exposure visits will be organized to beach, intertidal and mangrove ecosystems.

Module 7: Effective management planning of coastal and marine protected areas

This module provides an overview of the management experiences in terrestrial as well as marine environments. A description of the elements of management plan and guidelines for effective management of coastal and marine protected areas is provided. A detailed discussion of key biophysical, social and governance indicators to evaluate the effectiveness of MPAs form the major part of the learning from this module. Case studies help participants in applying concepts and guidelines to the real life cases.

Module 8: Communicating Coastal and Marine Biodiversity Conservation and management issues

This module will help field-level managers of marine and coastal protected areas (MPAs) understand how media looks at coastal and marine conservation issues. Since conservation is not in the media priority and biodiversity conservation come into news only when an event happens, the module will help managers to understand how to get develop and maintain their own network on conservation. The module will introduce different tools for media relations, their strengths and limitations. It will also discuss how to use these tools during a crisis communication situation.

1.3.3 Possible learning outcomes of the training courses based on this curriculum

By the end of the course, the participants will be able to:

- Outline concepts and issues related to managing coastal and marine biodiversity, and demonstrate the types and relevance of different categories of MPAs in different scenarios
- differentiate clearly, between the ecological and socio-political context, conservation approaches and legal-policy framework between terrestrial and coastal-marine PAs.
- conduct assessment and monitoring of coastal and marine habitats and species and prepare field reports
- develop, under supervision, operational plan for MPAs based on management effectiveness guidelines
- be open to acquiring more knowledge on coastal and marine biodiversity relevant issues

1.3.4 Training approach and methodology for implementing the curriculum

The curriculum uses a modularized structure, and modules can be delivered using different training methods over appropriate durations.

The modularized structure provides flexibility. The contents, methods and duration of different topics can be modified according to the training needs of the participants.

The curriculum permits a mix of field-based and classroom training sessions to be used, in almost equal proportions, to facilitate the participants to apply theoretical information learnt in classroom sessions in field conditions and to absorb the experience of local ecological and human communities.

The course uses participatory training methods for classroom sessions and field exercises. Learning through the active involvement of the trainees is facilitated, and it is they who develop the answers.

The following are some examples of such methods:

- group work and presentations
- dialogue and brainstorming
- Knowledge Café
- Role Play
- simulation (case study simulation/video simulation)
- online games and mind maps
- case studies
- Fish Bowl method of discussion
- icebreakers, energizers and team-building exercises
- Nature walks and contemplation exercises
- Field excursions
- Under-water and coastal surveys

1.4 Profile of trainers

This guide can be used by an experienced trainer who understands and has knowledge of the fundamental concepts and practices of development, environment and biodiversity conservation; and has an appreciation for a participatory training approach. The trainer is willing to put in that extra effort to orient each module and training methods to maximize the participant's learning outcomes.

The basic assumption is that the trainer has been working on such issues in the field and will be able to draw on prior knowledge and experience to use and/or adapt the course material and guide the participants through the concepts and field methods of coastal and marine biodiversity and CMPA management.

It is recommended that the trainer/faculty/members has participated in the "Training of Trainers" on participatory training methods. It is strongly recommended that the Trainers use the "Trainer's Guide: Participatory Methods of Training for Effective Content Delivery- for the trainers of forest, fisheries and media sectors"[1].

1 Neeraj Khera, K. Sivakumar and Pradeep Mehta. 2016. Trainer's Guide on Participatory Methods of Training for Effective Content Delivery for the trainers of forest, fisheries and media sectors. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) India. ISBN 978-81-933282-3-1. Pp 120

1.5 Sample training duration and schedules

The duration of the entire course will depend on the background trainings that the potential participants have already gone through (e.g. if they have already taken basic training on biodiversity or not), time availability (sometimes due to staff shortage, the staff cannot be released for longer duration training). The respective length and time for each module within the course will, however, depend on the emphasis the institute/trainer wishes to give to a specific topic and on the participants' needs and interests. It is strongly recommended that the trainers conduct baselining session (refer to section 2 for details of this method) on the first day of the course, before finalizing the course schedule for a specific group of participants.

There can be several options for delivering this curriculum. We provide three samples here:

- One month course, which includes SCUBA diving as part of the course
- 10-Day course, preceded by a SCUBA course as an add-on course
- Three-day Training Expedition, for an orientation course

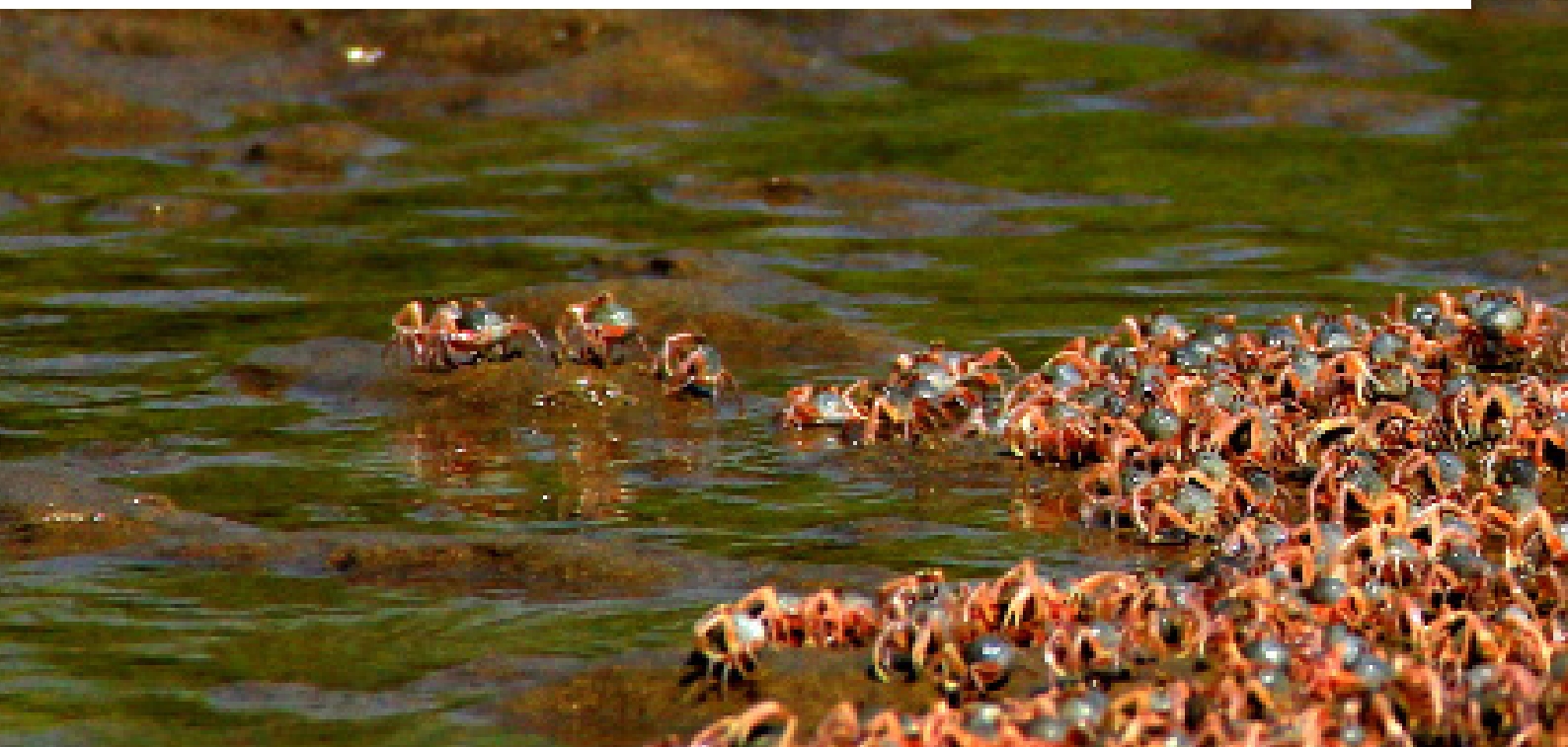
OPTION 1: 10-Day course, preceded by a SCUBA course as an add-on course

Date	Module	Special Organizational requirements, if any
WEEK 0		
	SCUBA diving course (4 days)	
Week 1		
	Participants arrive at the training venue	
Day 1	Welcome & Introduction (morning)	
	Session on base-lining expectations (Afternoon)	
	An introduction to coastal and marine biodiversity and ecosystem services + MPAs	
Day 2	Coastal and marine biodiversity and Ecosystems Services in the overall environment and development context	A brief excursion to meet the local fish workers community
	From Landscape to Seascape	Classroom/ Outdoor
	Visit of Resource Persons to the local fish market (morning 6.30-8)	
Day 3	Sustainable Fisheries management and MPAs (morning)	*Expert inputs*
	Marine and Coastal Protected Areas (afternoon)	*Knowledge café/ discussion*
Day 4	Simulation exercise on coastal biodiversity management	Classroom/ Outdoor
	Visit to coral, mangrove creek area Reflection on fisheries management (2-5pm)	*Outdoor* *Fish-bowl method*
Day 5	Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas	*Classroom session* *[Expert inputs, knowledge café]*
Day 6	Excursion Evening: Participant's experiences of law enforcement and effectiveness, rescue of stranded marine animals	*Excursion* *Evening get-together*
Week 2		
Day 7	Assessment and monitoring of coastal and marine biodiversity and relevant issues: - Biodiversity data for decision-making, - effective management planning of MPAs, - conceptual understanding of the assessment and monitoring methods, working groups for hand-on experience on developing monitoring protocols	Classroom / Outdoor sessions [Expert inputs, brainstorming, virtual tour of selected areas, Group work Fish Bowl]
Day 8	Demonstration of LIT/video LIT/ Quadrat/Photo method in shallow water Demonstration of use of methods for Mangroves and estuarine ecosystem Assessment and monitoring	
Day 9	LIT/video LIT/ Quadrat/Photo method in Field (coral reef and sea grass/seaweed) LIT/video LIT/ Quadrat/Photo method in Field (mangroves and intertidal ecosystem) Data Entry and Analysis (evening)	*SCUBA and boat facilities in field* *Outdoor/ Classroom* *Computers/ software*

Date	Module	Special Organizational requirements, if any
Day 10	Effective management planning of coastal and marine protected areas	Classroom session [Expert inputs, Group work, Fish Bowl]
	Case studies on MPA management plans and Interpretation of Data	
	Media and outreach	Classroom/ Outdoor sessions
	Feedback and evaluation	
Concluding		
	Certificate Ceremony	
	Departure of participants	

OPTION 2: One month course, which includes SCUBA diving as part of the course

Date	Module	Mode/ Method of delivery[1]
WEEK 1		
Day 0	Participants arrive at the training venue	
Day 1		
10.00am	Welcome & Introduction, Context and background to the course, Meeting the Organizing team	
11.00am	Experiencing connectedness to nature (Module 9)	Outdoor session
12.30-2pm	Lunch	
2.00pm	Base-lining expectations of the participants, Discussion on the overall course and training methods, identify areas to adapt based on feedback, Formation of co-management groups from participants	
5.00pm	Identifying the individual customized options for sharing knowledge (blog/ videos/ short articles, photo stories/ sketches/ many more) (Module 10)	
Day 2		
9.15-9.30am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
9.30-12.30	An introduction to coastal and marine biodiversity and ecosystem services (Module 1)	Classroom/ Outdoor
12.30-2.00	Lunch	
2.00-5.00pm	Facilitating the participants in their work on communication tools for sharing knowledge and experiences (blog/ videos/ short articles, photo stories/ sketches/ many more) (Module 10)	Classroom/ Outdoor



Day 3		
9.15am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
07.00-08.00	Visit to jetty to see the new type of trawl nets	
09.00-2.00pm	Excursion on a trawl boat to experience the pilot testing of the newly introduced trawl net	
3-4	Coastal and marine biodiversity and Ecosystems Services in the overall environment and development context (Module 2)	Classroom/ Outdoor
4.00-6.00	Facilitating the participants in their work on communication tools for sharing knowledge and experiences (blog/ videos/ short articles, photo stories/ sketches/ many more) (Module 10)	Classroom/ Outdoor
	A brief excursion to meet the local fish workers community (Module 2)	
Day 4		
9.15am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
9.30-12.30	Coastal and marine biodiversity and Ecosystems Services in the overall environment and development context (Module 2)	Classroom/ Outdoor
	Lunch	
2.30-4.30	Simulation exercise on coastal biodiversity management (Module 2)	Classroom/ Outdoor
5.00-6.00	Formalities for Scuba Diving Course	
Day 5		
	Recap of the previous Day	*Chosen method by the volunteer participant /group*
	Confined water 1 (2 hr) Confined water 2 (2 hr) Scuba Class Room session (2 hr) (Module 7)	SCUBA facilities
Day 6		
	Recap of the previous Day	*Chosen method by the volunteer participant /group*
	Confined water 3 (2 hr) Confined water 4 (2 hr) Confined water 5 (2 hr) Scuba Classroom session (2 hr) (Module 7)	SCUBA facilities
Day 7		
	Recap of the previous Day	*Chosen method by the volunteer participant /group*
	Open water diving1 Open water diving 2 Scuba Classroom session (Module 7)	SCUBA facilities

WEEK 2		
Day 8		
9.15am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
	Open water diving 3 and 4 (2hr each) Scuba Classroom session (2 hr) Scuba examination (2 hr) (Module 7)	SCUBA facilities
Day 9		
This day onwards, the group who clears SCUBA examination can focus on the underwater techniques, and the other group can focus more on the coastal techniques. Though, the coastal group will also get the opportunity to learn the under-water techniques in the pool demonstration plots		
Day 10		
6.45- 7.45	Coastal Bird assessment	
6.30 - 8am	Visit of Resource Persons to the local fish market (Module 4)	
8.30-10.30am	Climate change adaptation and disaster risk reduction: interlinkages with coastal and marine biodiversity and protected areas (Module 2)	
10.45am	Recap of the previous Week	*Chosen method by the volunteer participant /group*
11am-6pm	Sustainable Fisheries management (Module 4)	*Panel Discussion/ Workshop*
Day 11		
6.30-7.30am	Excursion to understand fisheries management (Module 4) Meeting the local fishworkers to understand traditional fisheries practices	Vehicles/ Boats for excursion
	Recap of the previous Day	*Chosen method by the volunteer participant /group*
8.45am -3.00pm	Open water diving and fish Identification (Module 4) (1 and 2 for participants; 3 and 4 for the rest) Visit to mangrove creek area Lunch	*Outdoor / SCUBA facilities*
5-6 pm	Reflection session on fisheries management (Module 4)	*Outdoor*
6-8pm	SCUBA classroom session	
Day 12		
	Recap of the previous Day	*Chosen method by the volunteer participant /group*
7.00am-02.30pm	7.00 assembly and briefing near the pool Confined water (Module 7)	*POOL facilities*
2.30-4.30pm	Lunch break	
4.30-6.30pm	Contd....(Module 2)	*Classroom/ Outdoor*
Day 13		
8.30	Assembly and recap of the previous Day	*Chosen method by the volunteer participant /group*
08.30-02.30	Mainstreaming biodiversity into development planning (Module 3)	
2.30-4.00	Communication products	

4.00-8.00	SCUBA classroom	
Day 14		
11.00am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
11.15-12.00pm	Global Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas (Module 6)	*Classroom session*
12.15-1.00 2.00-3.00	The Indian Scenario: Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas (Module 6)	*Classroom session*
3.00- 4.00	Experiences from the field on law enforcement (Module 6)	*Role Play, followed by Fish bowl*
6.00pm onwards	Evening: Participant's reflections on law enforcement and effectiveness, rescue of stranded marine animals, future potential and policy recommendations (Module 6)	*Evening get-together*
WEEK 3		
Day 15		
09.00am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
09.00-10.00	Marine Protected areas (Module 5)	Expert inputs Discussion
10.00-11.00	Introduction to assessment and monitoring of coastal and marine biodiversity in the overall context of effective management planning of MPAs (Module 7)	
2.00-6.00	Field method for assessment of sandy beach fauna (Group1) Pool training (Group 2)	
7.00-8.0	Biodiversity data for decision-making (Module 5 & 7)	Fishbowl
Day 16		
09.00am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
09.15-11.00	Conceptual understanding of the assessment and monitoring methods, working groups for hand-on experience on developing monitoring protocols (Module 7) An overview of key methods to be implemented in the comings days in the course (Module 7) Data Entry and Analysis; Interpretation of data vis-à-vis effective management planning of MPAs	Expert inputs
011.30-1.30pm	Demonstration of use of methods for Mangroves and estuarine ecosystem Assessment and monitoring (Module 7)	Field session [GIS maps of the field required]
2.30-5.30	Analysis and interpretation of data from the field (Module 7)	Expert inputs Group work
Day 17		
7.45am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
8.00-12.00	(Contd…) Demonstration of use of methods for Mangroves and estuarine ecosystem Assessment and monitoring (Module 7)	Field session [GIS maps of the field required]
2.00- 7pm	Demonstration of LIT/video LIT/ Quadrat/Photo method in Pool (Module 7)	*Pool facilities*

Day 18		
7.15am	Assembly and recap of the previous Day	*Chosen method by the volunteer participant /group*
7.15am onwards	Demonstration of LIT/video LIT/ Quadrat/Photo method in Field (coral reef and sea grass/seaweed) (Module 7) (group 1) Open Water Dive 3 (Diving Group) Mangrove and estuarine survey (Non-Diving Group)	*SCUBA facilities in field*
5pm-7pm	Data Entry and Analysis; Interpretation of data vis-à-vis effective management planning of MPAs (Module 8) (Module 7) Introducing the simulation game on ecosystem services of Bakul !!	*Outdoor/ Classroom* *Computers/ software*
Day 19		
9.15am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
9.30am-12.30	Effective management planning of coastal and marine protected areas (Module 8)	Classroom session [Expert inputs, Group work, Fish Bowl]
2.00-5.00pm	Case studies on MPA management plans and Interpretation of Data (Module 8) (Module 7) PLAN A	Expert inputs followed by knowledge Café
2.00-5pm	Open water diving / snorkelling PLAN B	
Day 20 and 21 Ocean Safari		
WEEK 4		
Day 22		
9.15am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
09.30-12.30	Effective management planning of coastal and marine protected areas: concepts of ecotourism, carrying capacity (Module 8)	Classroom session [Expert inputs, Group work, Knowledge Cafe]
2.30-5.30	Change management, Leadership and Ecological Continuousness: A simulation exercise on communication with the local communities (Module 9)	Outdoor session
Day 23		
9.15am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
9.30-11.30am	Change management, Leadership and Ecological Continuousness (Module 9)	Classroom/ Outdoor sessions
12.00-5.30 (with lunch break)	Effective management planning of coastal and marine protected areas (Module 8)	Simulation
Day 24		
9.15am	Recap of the previous Day	*Chosen method by the volunteer participant /group*
09.30-12.30	Media and outreach (Module 10)	Classroom/ Outdoor sessions
12.30-5.00	Pool/ Open water	
5.00-7.00pm	Change management, Leadership and Ecological Continuousness (Module 9)	Classroom/ Outdoor sessions

Day 25		
07.00-09.00	Change management, Leadership and Ecological Continuousness (Module 9)	Classroom/ Outdoor sessions
11.30-1.30	Media and Outreach (Module 10)	Classroom/ Outdoor sessions
2.30-4.30	Feedback and evaluation	Classroom/ Outdoor Session
07.00 onwards	Dinner	
Day 26		
10.00-12.00	**Panel Discussion :** A Road map for effective and sustainable management of coastal and marine protected areas in India	
12.00-01.00	Certificate Ceremony	
1.00pm	Lunch	
2.00pm onwards	Departure of participants and guests	

OPTION 3: Three-Day Training Expedition for an orientation course

Date	Activity	Key Themes
Day 1		
10.00–10.30AM	Registration &Tea/Coffee	
10.30–11.30PM	Welcome, Introductions, Benchmarking experiences, Expected Outcomes, An overview of the schedule, Resource materialand Approach of the training expedition, Thematic Champions	
11.30 AM–01.00 PM	Inputs and Discussion on the key issues and challenges in conserving coastal and marine biodiversity	An introduction to coastal marine biodiversity and ecosystem services; overall development context and challenges in conserving coastal and marine biodiversity; introduction to the concept of mainstreaming biodiversity into other sectors; an overview of MPAs
01.00 PM–02.00 PM	Lunch& Self–study and time to reflect and work on the learning journal and get familiarized with the training resource material	
02.00–07.30 PM	Visit to a coastal area/ marine expedition [issues to be observed and discussed– Coastal ecosystems, habitat and species diversity, identification of key coastal and marine species, coastal and marine biodiversity in connection with climate change and disaster management, stakeholders for coastal and marine conservation, and role of science in management of MPAs] Discussion (Fish–bowl)]	
07.30–8.00 PM	A short quiz	Coastal and marine species identification
08.00 PM onwards	Briefing and distribution of roles and case study for a role play for next day Dinner &Self–study and time to reflect and work on the learning journal, prepare for the role play for next day;	
Day 2		
06.30– 07.00AM	Reflection on connectedness to nature	*At the open space in hotel / nearby coastal area*
07.00 –08.80AM	Breakfast & Self–study and time to reflect and work on the learning journal	
08.30- 09.30AM	Visit to a fish landing area, interaction with fish workers	
10.00 – 12.00 PM	Inputs and Discussion on the key issues and challenges in conserving coastal and marine biodiversity	Law and policies for coastal and marine biodiversity conservation, challenges and good practices in MPA management, managing tourism in coastal and marine areas, sustainable fisheries and community livelihoods
12.00–01.00PM	Quiz on coastal and marine species identification and assessment	
01.00–01.30 PM	Lunch & Self–study and time to reflect and work on the learning journal	
01.30–07.30 PM	Visit a Marine area/ coastal habitat	Adaptive and sustainable management of coastal and marine protected areas, assessment and monitoring methods of mangroves and other coastal and marine species, tourism planning in MPAs
07.30– 08.00 PM	Back to training venue, Debriefing and Discussion (Fish bowl)	
8.00 PM onwards	Briefing and distribution of information on Bakul- the simulation on ecosystem services to be played next day Dinner &Self–study and time to reflect and work on the learning journal	

Date	Activity	Key Themes
Day 3		
07.00–07.30 AM	Reflection on connectedness to nature (At an open space in hotel/ nearby beach/ natural area)	
07.30- 10.00AM	A walk in a nearby coastal / marine area to observe and understand biodiversity elements and variety of coastal habitats	
10.00 – 01.00 PM	Simulation exercise (Bakul)	Participatory management of coastal and marine biodiversity, Communication between key stakeholders, cross–sector cooperation, assessment and monitoring of coastal and marine biodiversity element, legal and policy frameworks for coastal and marine resources
01.00 –02.00PM	Lunch	
02.00 – 03.00 PM	Simulation exercise continues…	
03.00 - 04.00 PM	A game on communication among stakeholders	Communicating coastal and marine biodiversity to key stakeholders
04.15 - 5.15PM	Knowledge Café [Participants discuss key issues on coastal and marine biodiversity conservation, in groups, based on their thematic championship]	
05.30–06.30 PM	Feedback and evaluation	
06.30 –07.30 PM	Certificate Distribution	
08.00 PM onwards	Dinner	
Day 4		
Morning	Departure of participants and resource persons	

SECTION 2

Overview of the modules and session delivery

This section provides an overview of the eight modules with their learning outcomes, summaries and the key messages that must go from trainers to the participants. A session-wise presentation of contents of the modules and descriptions of the most appropriate training methods (methods that have either been tested or are thought to be suitable for delivering the contents of the respective modules) are provided. This will help the trainers in implementing this curriculum in the most effective way. The trainers may like to refer to the "Trainer's Guide on Participatory Training Methods" for details of training methods. Lists of the main sources and further resources for each module are provided in this section itself.

2.1 Pre-module sessions

It is recommended that before starting the Training, the trainers conduct a quick check on the level of existing knowledge of the participants and also assess their expectations from the course/specific modules. In order to maintain a positive attitude during the entire course and right facilitate the participants in understanding coastal and marine issues from a new perspective, the trainers are encouraged to spend some time on the connectedness to nature session. Here, a sample of such pre-module sessions is provided, which can be customized based on the time-availability and also the access to coastal or any natural area.

2.1.1 Session 0: Introduction: Knowing the participants and their relationship with the coastal and marine biodiversity and ecosystems

Duration: 30 minutes [Outdoor/Indoor session]

This session will be key in facilitating the participants in establishing an emotional connect with the coastal and marine biodiversity and its conservation, where they will express their identify, experience and interest in the context of coastal and marine ecosystems.

- take the participants outside in an open space, preferably garden/ beach. Alternatively an indoor venue with some windows can also be selected.
- organize the seating arrangement in a closed circle of chairs without any tables if the session is being conducted on beach, then all the participants can stand in a circle.
- spread a selection of post cards on coastal and marine life (also available in the trainers kit) on the floor, and request participants to pick a post card that they feel some instant association with. At this time, the participants can stand and look around to pick the card, and then go back to their seat and sit with their post selected post card.
- Invite participants to share about themselves on the following lines:
    - what attracted them to their selected photo;
    - Their name,
    - how do they relate emotionally to the coast and/or sea,
    - how are they associated with coast/sea in their professional lives, and
    - what are they looking forward to in this training?

2.1.2 Session 00: Baselining experiences and expectations

Duration: 30 min /60 min

2.1.2.1 Part-1: What is the collective experience and expertise in this group?

A good way to engage adult audiences seriously is to get information on the participants' experience and expertise on the first day. It is important to know details such as what the participants actually know on the topics to be taught during the course, their language skills and their interest areas within conservation and MPA management:

- Invite the participants to stand in a group in the middle of the room.
- Ask them, 'How much do you think you already know about coastal and marine biodiversity?'
- Identify two opposite corners of the room as the two ends of an imaginary scale—one corner representing 'I know everything that I need to now' and the other corner representing 'I don't know anything on coastal and marine biodiversity.'
- Ask the participants to place themselves on this scale to give their answer. Those who think that they know everything that they need to know should stand at the first corner of the room, while those who think that they do not know anything should stand at the second corner. Those participants who know about coastal and marine biodiversity to some extent should place themselves at an appropriate place on this scale.
- Encourage them to talk to each other to find out their relative placement on the scale.

You can register in your mind, or take a picture of, the relative positions of the participants on the scale or write down the names of participants who know much or those who do not know anything. At the same time, encourage participants to share their experience (those who place themselves relatively high on the scale).

Now, ask the next question and let the participants change their positions according to the new question. This method helps the trainer understand the general level of the class—whether all the participants already know something on the subject, their geographical origins (to help pitch the examples), their interest in specific issues (law and policies, invasive species, climate change etc) and their language skills.

If the trainer finds out that four out of 20 participants in the groups, are not very comfortable in the language that is expected to be the mode of instruction, the trainer can identify among the participants a translator who can help these participants translate the difficult portions of the training material during the breaks or as and when required. Similarly, the trainer can adapt the training methods and examples for the training to have the greatest impact.

2.1.2.2 Part-2: Cross-checking learning outcomes and schedule

As the most important principle of a participatory approach to training, the participants must be fully aware of and agreed to the expected learning outcomes from the course and also the schedule that will be used to help them achieving these learning outcomes. Therefore, it is crucial for the trainer to invest sometime in holding a dialogue with the participants on their expected learning outcomes and their suggestions on the course schedule.

What are we going to learn from this one month course?

- You would required soft boards, cards, marker pens and pins to conduct this session using a visualization method.
- Write down the learning outcomes of the overall course, as well as each module on different colour cards.
- Pin the cards while reading them out.
- ask for volunteers to share their views on the learning outcomes
- facilitate a dialogue among the participants on any additional learning outcomes required

How are we going to learn in this one month course?

- Place the contents of each Week on cards (4 long cards); place the contents of each module on cards (10 rectangular cards); - Place the contents of field-visits on cards (3-4 oval shaped cards)
- get the opinion of participants on the overall schedule; ask them to share their views on anything that they are not comfortable with; try to explain the reason for the specific module/ activity, when raised a question; take a majority vote if a genuine problem in the schedule is hinted at, and see how it can be adapted; involve participants in adapting the schedule (e.g. if they are not comfortable with the schedule of the field visit, then explain to them the arrangements and appointments already made for the field visit, and ask their support in how to modify the plan; if they want to add some new topics to the curriculum, ask them to identify a timeslot in the schedule, and also if there is someone among the participants who can serve as a resource person to explain the topic to the fellow participants).

2.1.3 Session OOO: Connectedness to nature

Duration: Can vary from 30 minutes [Video/photo slide show with background music] to 2-3 hours [a visit to a nearby coast and reflection]

The trainer can use **Handout 1** to help participants reflect on their connect with nature. Details on conducting this session , using more elaborate and structured methods, are provided in the Trainer's Guide on Participatory Training Methods[2]

2 Neeraj Khera, K. Sivakumar and Pradeep Mehta. 2016. Trainer's Guide on Participatory Methods of Training for Effective Content Delivery for the trainers of forest, fisheries and media sectors. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) India. ISBN 978-81-933282-3-1. Pp 120

2.1.4 Session 0000: Establishing Co-management task forces 60 minutes

Duration: 60 Minutes

To facilitate a true participatory approach to training and learning, it is important for the participants to feel themselves as a part of the decision-making processes vis-a-vis course delivery schedule. An effective way to do this is include them in the discussions on the overall management of the course. This session can be combined with the session 00, if time permits, or can be conducted at the end of Day 1 when the participants are more in tune with the schedule and the overall requirements etc.

- request participants to organize themselves as paired group, and share with their partner, the contribution that they can make to the course, in terms of supporting to organize a field visit/ volunteering as a resource person for a particular topic in the curriculum, moderating a group discussion/ any such activity.
- place a pin board or a flip chart and request participants to write their names and the contribution that they want to make on card and pin it on the board
- finalize their contribution on a sheet of paper, and distribute to them later/ next day;
- organize the schedule of meetings to have discussions with the co-management teams on their respective tasks

2.2 MODULE 1

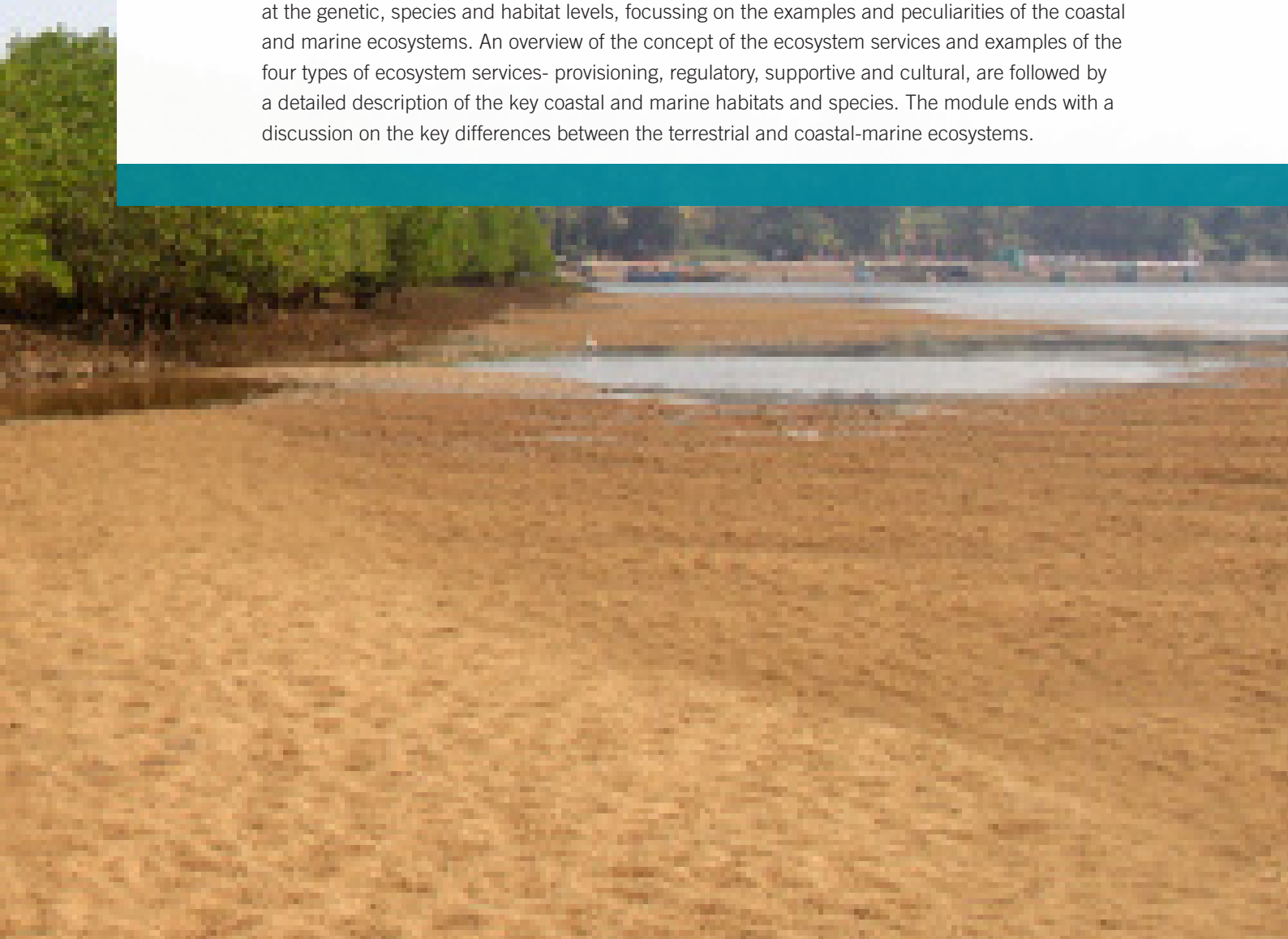
An Introduction to Coastal and Marine Biodiversity and Ecosystem Services

After completing this module, the participants will be able to

- explain the term 'Biodiversity' and describe different aspects of the concept;
- illustrate different types of coastal and marine habitats and species
- outline different types of ecosystem services arising out of coastal and marine biodiversity;
- understand the ecological basis for conserving coastal and marine biodiversity;
- express the differences between terrestrial and coastal ecosystems with clear examples;
- explain the key differences between landscapes and seascapes; and appreciate the difference in socio-economic and political contexts of terrestrial and coastal-marine ecosystems and their management.

Summary

This module provides the foundation of the course by providing the basic concepts of biodiversity at the genetic, species and habitat levels, focussing on the examples and peculiarities of the coastal and marine ecosystems. An overview of the concept of the ecosystem services and examples of the four types of ecosystem services- provisioning, regulatory, supportive and cultural, are followed by a detailed description of the key coastal and marine habitats and species. The module ends with a discussion on the key differences between the terrestrial and coastal-marine ecosystems.



Key messages

1. 'Biological diversity or biodiversity refers to the diversity of life in all its forms and at all levels of organization.' The levels of biodiversity are the diversity within a species (genetic diversity), the diversity of species (species diversity) and the diversity of ecosystems (habitat or ecosystem diversity). Each of the three levels can be described further: What types of elements are there and in what numbers (compositional biodiversity), how they are arranged (structural biodiversity) and what role they play in the system (functional biodiversity).
2. Ecosystems provide a variety of benefits to people, including provisioning, regulating, cultural and supporting services, known as 'Ecosystem Services.'
3. Biodiversity is the foundation of resilient ecosystems supporting a vast array of 'functions.' Genetic, species (animal and plant) and habitat diversities have important roles to play in provision of ecosystem services.
4. Changes in biodiversity can influence all these functions (e.g., pollination, nutrient cycling) and the products arising out of these (e.g., food, medicinal plants).
5. One of ways to measure and monitor biodiversity is by using surrogates, which is based on certain assumptions that the conservation benefits of surrogate species extend to a larger set of species and/ or habitats. These are called "Conservation Shortcuts" and include umbrella, flagship, keystone and indicator species.
6. There are several types of coastal ecosystems in India: inland freshwater wetlands, inland brackish water wetlands, estuarine wetlands, coastal mudflats, sand dunes, rocky shores, mangrove forests, coral reefs and other coastal and marine ecosystems.
7. Marine and terrestrial ecosystems are different with respect to the aquatic medium in which all marine organisms exist. Water unites, land divides—there are no discrete boundaries in marine ecosystems as seen on land.

Key words

Biological diversity; genetic, species and ecosystem diversity; keystone, umbrella, indicator and flagship species; provisioning, regulating, supportive and cultural ecosystem services; mangroves, wetlands, seagrasses and coral reefs.

2.2.1 Session 1: What is biodiversity? Habitat, species and genetic diversity; keystone, flagship and umbrella species

Topics to be discussed

Duration: 2 hours

- The definition of biodiversity. Levels of biodiversity—genetic, species and habitat diversity. An overview of spatial and temporal relevance of biodiversity.
- How species diversity contributes to ecosystem resilience and resistance. How genetic diversity is the basis of food security. How habitat diversity maintains ecosystem services.
- What are conservation shortcuts? An overview of the keystone, umbrella, flagship and indicator species of the coastal and marine ecosystems
- A game to demonstrate the elements of an ecosystem and their interdependence (described below in this box)

Methods:

Interactive lecture, followed by playing of a game on interdependence

Material required:

PowerPoint presentation, a ball of wool for the game

The woollen string ball game to emphasise the interdependence of everyone in the web of life

- The trainer requests the participants to come at an open space in the room or outside and form a closed circle.
- The trainer holds one end of the soft woollen string from the ball and says his/her name and something about herself in one line. She then tosses the woollen ball holding on to the end of the string in one finger connecting her to the person who now has the woollen ball.
- Participants when receive the woollen ball hold it slightly with their finger and say their name and one line about themselves, and toss the woollen ball to the next participant thus connecting the participants with the woolen sting. Alternatively, everyone can also say one key term that influenced them the most in the previous session; this way this game can also be a recap of the previous session. This goes on for some time till all participants have the woollen string forming a large web connecting each and everyone.
- The trainer now asks them to tug towards outside. Participants will feel that there will be sturdiness in the structure of the web when they tug it outside.
- Now the trainer will ask a few participants to remove the string from his/her finger At this time, when the group tugs outwards, the web gets destabilized and loosens up due to the absent participants.
- The trainer now asks more participants to leave the web by removing their finger from the string.
- This time when the trainer asks the participant to tug on the web, the web breaks down. The trainer facilitates the participants to reflect on the situation for a few seconds. The trainer then shares with participants the analogy of the web created by wollen string with the web of life and ecosystems. The trainer shares that the web was strong in the first round because everyone was holding the front, but crumbled upon in the next rounds due to missing anchors, similarly in nature the ecosystems are stable and resilience by presence of various species and habitats who have a specific role to play, but the absence of even few species or habitat can lead to loss of ecosystem and the benefits that we obtain from such ecosystems. This chaos in nature is caused through unsustainable methods practised by humans is explained by the trainer.
- Thus the message is given to the participants that every species and habitat is important in an ecosystem and loss of it will lead to long term and broader negative impacts on the ecosystem and ultimately to human beings.

2.2.2 Session 2: Why is Biodiversity Important? Ecosystem services: provisioning, regulating, supporting and cultural ecosystem services

Topics to be covered: Duration: 2hrs/ 4hrs

- What are different types of ecosystem Services?
- Detailed discussion on the four types of ecosystem services: provisioning, regulating, supporting and cultural

Methods:

- The contents are delivered via a PPT
- The trainer plays a film on ecosystem services
- The participants are provided with hand-outs on different types of ecosystem services
- Participants read the hand-outs and reflect for a few minutes
- Participants then share their personal views on the ecosystem services they are dependent on, in the form of a fish-bowl method

Material required:

PowerPoint presentation, video documentary (see box), Internet connection and projector with sound system

A film on ecosystem services

People all around the world have taken Mother Nature for granted. What we casually term air, water, food etc. are ecosystem services Mother Nature provides. This film's narrative delves into the services Mother Nature provides which we take for granted. This film also provides a hint of a dystopian period.

This short film was developed by the media students of Xavier Institute of Communication - Mumbai, under the Indo-German project 'Conservation and Sustainable Management of Coastal and Marine Protected Areas (CMPA)'.

Developing short films on coastal and marine biodiversity conservation issues is one of the key evaluation criteria to assess the achievement of learning outcomes of the media students undertaking the course titled 'Communicating coastal and marine biodiversity conservation and management through the media'. This course was developed under the Human Capacity Development component of the CMPA project, under the Indo-German Biodiversity Programme.

The CMPA Project has been commissioned by the German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB) with the funds provided under the International Climate Initiative (IKI). The CMPA Project is being implemented in selected coastal states in India and focuses on capacity developed of the key stakeholders in the forest, fisheries and media sectors

https://www.youtube.com/watch?v=8-CFg6s8kes

2.2.3 Session 3: From landscape to seascape: What is coastal and marine biodiversity?

Topics to be discussed

Duration: 2 Hours + Field sessions for species identification

- Different types of terrestrial and coastal and marine biomes and habitats
- Detailed account of the types of different coastal and marine habitats and species and their key characteristics
- Magnitude and extent of the coastal and marine ecosystems and species in India
- Case studies of some known habitats and species
- What are the differences between the terrestrial and coastal and marine ecosystems?- ecological, socio-economic and political-security context

Methods

The contents are delivered via a PowerPoint presentation.

This is followed by a video documentary about different coastal habitats and species.

The participants are facilitated to identify key habitats and species of the coastal and marine areas, especially the area where the training course is being conducted. This can be done via using a slide-show of pictures of different species and habitats, using printed post-cards with species pictures and names during the breaks, guiding the participants in conducting internet browsing to see the pictures of various coastal and marine species. The participants can then be taken for an expedition in the nearby coastal area, and for snorkeling / diving if possible (usually the curriculum framework recommends that the participants undergo a SCUBA diving course before the course begins). The purpose of this exercise of habitat and species identification is to make the participants familiar with the key coastal and marine habitats and species, and make them comfortable in engaging in the upcoming sessions on coastal and marine habitats and species.

[Refer to the "Trainer's Guide on Participatory Training Methods" for further details on this participatory training method]

Material required

- PowerPoint presentation, video documentary (see box), Internet connection and projector (optional) post cards with pictures of coastal and marine habitats and species, species identification guide, photo side show.

Mangroves: Guardians of the Coast

Guardians of our Coast showcases the fascinating web of life that surrounds these tidal forests. The movie highlights the unique collaboration between governments, regional and local institutions, NGOs and local communities, in efforts to save these vulnerable ecosystems and restore them to their former glory.

https://www.youtube.com/watch?v=4SY7X9zdZ-U

[Mangrove for the Future (MFF), IUCN]

2.3 MODULE 2

Coastal and marine biodiversity and Ecosystems Services in the overall environment and development context

Learning outcomes

After completing this module, the participants will be able to:

- appreciate the concept of sustainability
- appreciate the role that biodiversity elements play in providing livelihoods to the coastal communities
- Understand the value of ecosystems and different elements of it, and outline the economic benefits that coastal and marine biodiversity provides to different sectors
- summarise the threats that different coastal and marine habitats and species face
- demonstrate the role of coastal and marine biodiversity in climate change adaptation and disaster risk reduction
- critically analyse the synergies and trade-offs between climate change adaptation, disaster risk reduction, coastal livelihoods and coastal marine biodiversity conservation.

Summary

This is the most comprehensive and time-intensive module of the course, setting the foundation of the issues of coastal and marine conservation in the overall development context. This module facilitates participants looking into the overall development agenda via Global Sustainable Development Goals, the concepts of sustainability, sustainable livelihoods and its interlinkages with the ecosystem services. The module takes a deeper look into the economic values, and threats to coastal and marine biodiversity and focuses in detail on the climate change and disaster risk reduction and their interrelationship with the coastal and marine biodiversity conservation. To make the learning easy for participants, this module comprises two very interesting training methods—ecological footprint game, and two simulation games on fictitious countries—Bakul, and Ceebano.

Key messages

- The eight Millennium Development Goals (MDGs), which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015—form a blueprint agreed to by all the countries and all the leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest.

  The MDGs have been replaced by the Sustainable Development Goals from 2015.
- At the Rio+20 meeting, two decades after the Earth Summit in Rio de Janeiro in 1992, it was decided to institute Sustainable Development Goals (SDGs) from 2015. Targets for achieving these goals have been set for either 2020 or 2030. Eradicating poverty was, once again, seen as the greatest challenge to humankind. Changing unsustainable patterns of production and consumption and promoting sustainable ones were major priorities, and managing the natural resource base was seen as essential to achieving such sustainable practices.
- It is estimated that nearly 250 million people live within 50 km of the coastline in India and are dependent on the rich coastal and marine resources. Therefore, the ecological services of the marine and coastal ecosystems play a vital role in India's economic growth and the welfare of its citizens.

- Today, human activities are threatening the seas and coasts greatly through overfishing, destructive fishing practices, pollution and waste disposal, agricultural runoff, invasive alien species and habitat destruction. Global climate change will make matters worse. Sea levels will rise, water temperatures will increase, oceans will become acidified and there will be more storms and natural disasters.
- Approximately 60 per cent (15 out of 24) of the ecosystem services evaluated in the Millennium Ecosystem Assessment (including 70 per cent of regulating and cultural services) are being degraded or used unsustainably. The loss of biodiversity at the habitat, species and genetic levels is enormous[3].
- The consequences of the biodiversity loss and resulting ecosystem services loss have a far-reaching impact on the livelihoods and overall well-being of human communities.
- Valuing ecosystem services will provide policymakers with a strong rationale to improve coastal and marine ecosystem management and invest in conservation for its risk management value and economic benefits. In order to fully leverage the ecological and economic knowledge of ecosystems and services, there is a need to generate and provide access to better data regarding ecosystem services.
- According to the Intergovernmental Panel on Climate Change (IPCC), the UN body set up to assess climate change, climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer[4].
- Climate change may be due to natural internal processes or external forcings, such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use[2].
- The main characteristics of climate change include rising temperatures, changes in rainfall pattern, melting of glaciers and sea ice, sea level rise and an increased intensity and/or frequency of extreme events. These changes in physical processes have impacts on biological and socio-economic factors such as shifts in crop growing seasons, food production and food security, changes in disease vectors, shifting boundaries of the forests and other ecosystems, and extreme events like flooding, droughts and landslides[2].

3 Millennium Ecosystem Assessment -MEA. (2005). Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC

4 Source: IPCC, 2001: Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change [Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell, and C.A. Johnson (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 881pp.

- Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term, and contribute to climate-resilient pathways for sustainable development[5].
- The goal of climate change adaptation (CCA) planning is to find local or locally adapted sustainable solutions for robust and diversified livelihood options, especially in climate-sensitive sectors such as agriculture, forestry and tourism.
- The livelihoods of the rural poor are affected, in one way or the other, by three major factors, viz, climate change, disruption/loss of ecosystem services and disasters.
- Though the objective of both CCA and disaster risk reduction is reducing the vulnerability of the local communities, some CCA and disaster risk interventions may negatively impact coastal and marine biodiversity and habitats and consequently leave people even more vulnerable than before to the impacts of natural disasters and vice versa[6].
- Many marine and coastal ecosystems no longer deliver the full suite of ecosystem services that humans have come to rely upon due to the existence of trade-offs between the activities of different sectors. Trade-offs can be minimized if the primary goal of all the activities in the marine and coastal ecosystems is maintaining a sustainable flow of ecosystem services[4].

Key terms

Millennium Development Goals; Sustainable Development Goals; threat to marine biodiversity; invasive species; coastal pollution; marine debris; economics, ecosystems and biodiversity sustainable development; ecosystem services; livelihood security; ecosystem valuation; coastal infrastructure development; threats to coastal and marine biodiversity, climate change adaptation, climate change mitigation, disaster risk, synergies and trade-offs.

5 Source: IPCC. 2007. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, P.J., Hanson, C.E. (eds.). Cambridge University Press, Cambridge, UK. 976 pp.

6 Source: Khera, N. 2013. Sustainable management of marine and coastal protected areas: Taking an inclusive approach technologies and their applications in sustainable use and conservation of coastal and marine protected areas in India. In: Sivakumar, K. (ed.) Coastal and Marine Protected Areas in India: Challenges and Way Forward, ENVIS Bulletin: Wildlife & Protected Areas 15: 264–273. Wildlife Institute of India, Dehradun 248001, India.

2.3.1 Session 1: Overall development context and concept of sustainability

Topics to be discussed

Duration: 1 hr/ 4 hr

- Sustainable Development Goals (SDGs) and sustainable development
- The concept of sustainability is discussed via the example of ecological footprint
- How are the SDGs dependent on ecological resources? : Human well-being, ecosystem services and livelihood sustainability

Methods

- An interactive lecture using PPT
- A discussion with the participants on their food, mode of transportation etc to facilitate their practical understanding of the concept of ecological footprint.
- Participants can also undertake the online test on their individual ecological footprint, as given in this section of their handbooks, and reflect on their connectedness to nature via their food.
- The ecological footprint activity can be repeated every day, reflecting on different consumables, such as clothes and stationery items, transportation and means of entertainment.

Material required

PowerPoint presentation, film on ecological footprint, flip chart or Pinboard and cards for documenting the discussion on ecological footprint

A film on ecological footprint

Our human activities consume resources and produce waste, and nature needs to have the capacity to meet these demands. The 'Ecological Footprint' is a way to measure our human demand on nature. This video explains what it is. This video was made with Moovly: https://www.moovly.com

Watch the Film here: https://www.youtube.com/watch?v=fACkb2u1ULY

2.3.2 Session 2: Value of Biodiversity and ecosystem services and its economic valuation

Topics to be discussed

Duration: 1 hr/ 4 hrs

- Value of coastal marine biodiversity and ecosystem services for key production sectors
  - an overview of the the value of biodiversity and ecosystem services (direct, indirect)
  - valuation methods and techniques
- TEEB: The economics of ecosystems and biodiversity
- Coasts and key production sectors
  - Coastal industries: aquaculture, ship breaking, salt mining
  - Coastal cities: urban development; urban development near ports—the case of a new capital for the state of Andhra Pradesh, which will be located near the coast; the case of the Mumbai floods
  - Tourism
  - Fisheries
  - Other forms of infrastructure development along the coast: New power plant, Coastal highways and railways—the case of Konkan Railways, More trade, bigger ports needed, Special economic zones (SEZs) linked to ports (JNPT in Mumbai, Vallarpadam in Kochi)

Methods

- Interactive lecture, followed by the Video of TED Talk (see box below)
- The topic on "coasts and key production sectors" can be given to participants as a handout a day before the session.
- Knowledge Cafe: Participants are formed into groups and are given one example of coastal and marine biodiversity each (e.g. a nearby mangrove, a mudflat, a particular fish found in that area etc), and they can work towards identifying value of the resource, and then arriving at a rupee value of the resource. All the groups get a chance to present their case, as well as get a chance to learn the cases given to others, in the form of a Knowledge Cafe.
- A brief field expedition to a nearby mangrove area or fish-market to discuss and analyse the value of one habitat or species as perceived by the coastal communities..

[Refer to the "Trainer's Guide on Participatory Training Methods" for further details on this participatory training method]

Material required

- Training handbook
- PowerPoint presentation
- Flipcharts and marker pens to be kept on different tables for the knowledge cafe

Put a Value on Nature! Pavan Sukhdev TED Talk

Every day, we use materials from the Earth without thinking, for free. But what if we had to pay for their true value, would it make us more careful about what we use and what we waste? Think of Pavan Sukhdev as nature's banker – assessing the value of the Earth's assets. Eye-opening charts will make you think differently about the cost of air, water, trees.teebweb.org TED Talk at TED Global 2011 - Filmed July 2011

http://www.youtube.com/watch?v=oU9G2E_RYJo

2.3.3 Session 3: Loss of biodiversity and ecosystem services

Topics to be discussed

Duration: 2 hrs/ 5 hrs

- Status of ecosystems services -Millennium ecosystem assessment
- Understanding the context in DPSIR framework
- A detailed account of the threats to coastal and marine biodiversity
- The root cause of conflicts: Trade-offs between different ecosystem services

  - Overfishing
  - Tourism
  - Invasive species; including case study on ballast water management
  - Pollution
  - Climate change and extreme weather events
  - Coastal squeeze, erosion and accretion
  - Poaching and smuggling of species
  - Marine debris

Methods

- PowerPoint presentations for providing an overview of the issues
- Participants can be facilitated to individually present a prioritized list of threats that their respective MPAs/ areas face. The soft board and cards can be used by the participants to place their prioritized list and present it to the group (Brain writing method).
- Videos are helpful in projecting the issues of threats etc as it becomes easy for students to assimilate information and see it in a visually appealing way. Use the videos provided below as well as in the PowerPoints to break the monotony of the sessions. The participants can be encouraged to watch the videos in their free time in the evening
- A fishbowl discussion, on the topic of "trade-offs between ecosystem services", will help participants in consolidating their views on the issue

[Refer to the "Trainer's Guide on Participatory Training Methods" for further details on this participatory training method]

Material required

- PowerPoint presentations
- Videos
- Pinboard, card, and pins for brain-writing

LOREN LEGARDA: Philippine Marine Biodiversity Documentary

In a bid to raise awareness about the current condition of the country's marine life and underwater resources, Senator Loren Legarda, Chair of the Senate Committee on Environment and Natural Resources, launched a video documentary on Philippine marine biodiversity. This video documentary is the third collaboration between Legarda and internationally acclaimed director Brillante Mendoza, following "Buhos" and "Ligtas". Also featured are marine videos taken by underwater videographer Robert "Bobbit" Suntay. The project was executed in partnership with the Department of Environment and Natural Resources (DENR) and the Philippine Information Agency (PIA).

https://www.youtube.com/watch?v=8-D3z3t-0Dw

This film will also serve as a precursor to the next two modules – Module 3 and Module 4

Global Fishing Watch I Technology Illuminating the Global Fishing Fleet

Global Fishing Watch is a technology partnership between SkyTruth, Oceana and Google, designed to show all of the trackable fishing activity in the ocean. This prototype uses AIS (Automatic Identification System) data to visualize the movements of global commercial fishing fleet.

https://www.youtube.com/watch?v=fn2JXmCUo30

2.3.4 Session 4: What is climate change? How does climate change impact coastal and marine ecosystems?

Topics to be discussed

Duration: 2 hrs

- What climate variability and climate change are
- Overview of the science of climate change—greenhouse gases, emissions, etc.
- Potential impacts of climate change, with special focus on and details of
  - the impact of climate change on fish species, their movements along the coast, the availability of fish and the associated livelihoods
  - extreme events
  - the impact on ecosystem services
  - the Indian coast and its vulnerability to climate change.
- Concepts of exposure, sensitivity, impacts, adaptive capacity and vulnerability; differential vulnerability
- Statistics of climate change, impacts on different ecosystems and communities
- Climate change management—concepts of mitigation and adaptation, potential and residual impacts, different types of adaptation (spontaneous, planned, anticipatory)
- Role of traditional knowledge in climate change adaptation
- Examples of possible adaptation activities, e.g., policy-based, behavioural, management
- Concept of ecosystem-based adaptation

Methods

- Interactive session using PowerPoint presentation,
- Play a doodle film on climate change adaptation
- Fishbowl method at the end of the session to facilitate participants in sharing their perceptions on various aspects of climate change and its interlinkages with their own work.

[Refer to the "Trainer's Guide on Participatory Training Methods" for further details on this participatory training method]

Material

- PowerPoint presentation
- Doodle film
- Flip chart/ cards to document the fishbowl discussions

BONN PERSPECTIVES: "It's time for decisions now"

We know enough about climate change - It is time for decisions now!

Watch the film now: https://www.youtube.com/watch?v=l-oAECOCk9Q

2.3.5 Session 5: Disaster risk reduction and Trade-offs

Topics to be discussed

Duration: 1 hr

- Natural vs man-made disasters
- The disaster continuum—disaster management cycle and the role of MPAs
- Overview of and statistics about the natural and human-induced disasters affecting the coasts
- Governance issues in disaster management—early warning, evacuation, natural disaster risk reduction, disaster-proof constructions, relief and rehabilitation
- Natural disasters and climate change
- The linkage between biodiversity, disasters, climate change and coastal livelihoods: Coastal livelihoods, concept of sustainability of livelihoods and ecosystem services
  - Trade-offs with MPAs and coastal marine biodiversity to adapt to climate change, e.g. sea-walls, aquaculture as livelihood strategy under CCA, casuarina plantations as bioshield
  - Synergies: communities and their preparedness for natural disasters, e.g. the Asian tsunami and cyclone, storm surges; lessons learnt from previous natural disasters—linkagaes to mangroves as bioshield

Methods

- Interactive session using PowerPoint presentation
- Fishbowl method to discuss and share experiences among the participants and resource persons on specific incidents when they have experienced some form of synergies or trade-offs between the efforts towards climate change management, disaster risk reduction and protected area management in the coastal areas

Material

- PowerPoint presentation
- Flipchart or Pinboard and cards for fishbowl discussion

2.3.6 Session 6: Understanding ecosystem services in a development context: Seeing the links between ecosystem services and human well-being

Simulation exercise on Ecosystem Services: Bakul

Duration: 4 hrs

This is a simulation exercise involving the fictitious country of Bakul, The country of Bakul has been "created" for the purpose of illustrating how an Ecosystem Services approach can be applied. It is a fictitious place, the conditions that are described draw heavily on experiences gained from the real world.

The Bakul simulation has been adopted in this training, from an existing publication of GIZ, "Integrating Ecosystem Services into Development Planning A stepwise approach for practitioners based on the TEEB approach[7]". This guide on Integrating Ecosystem Services into Development Planning (IES) aims to assist advisors, project staff and development planners in partner countries in recognising the links between nature and development. The IES guide consists of six-step approach towards decision making based on Integrated Ecosystem Services. For the purpose of the current curriculum, we have chosen the step 2 of this guide where the participants will be able to identify various ecosystem services of Bakul and engage in a discussion to prioritize these ecosystem services.

Methods

In this simulation, the participants play the roles of different stakeholders as mentioned in the background information on Bakul Provincial Development Plan. Participants are given time to prepare for their roles so that they are able to assimilate their knowledge on ecosystem services in the context of Bakul.

- The trainer provides an overview of the simulation in class-room sitting, and hands them the **Handout 2** on general information on the fictitious country and the situation, a day or two before the simulation.
- The participants get a day or two to read and understand the country, state, situation and stakeholders
- In the next session, the participants are given the roles of different stakeholders, as per the simulation game. If the number of participants is more than the roles in the simulation game, then the trainer can make teams. The trainer may use her/his discretion in assigning the roles based on the individual capabilities and personality, to make the simulation game more real-life like and interesting.
- Participants are provided with the working material, i.e. the flipcharts with the ecosystem services matrix/ A3 size printed sheets of the matrix on the flipchart boards for them to work on.
- The groups work on identifying and prioritizing the ecosystem services
- Role Play / Plenary discussion: A role play can be organized by the trainer where the development committee meets and how different stakeholder discuss and debate on getting their ideas listed in the development plan. (If the time does not permit, the the role play can be committed and the group can directly go to the plenary session. However, it is recommended to manage the time in a way that there is possibility of getting the role play implemented even if for a brief period.)
- At the end, the trainer asks participants to come out of their roles and sit together in a circle, in a place other than this board room setting *(This step is very important, as some participants might get attached to their roles and fail to discuss their observations objectively)*

7 GIZ (2012): Integrating ecosystem services into development planning. A stepwise approach for practicioners based on the TEEB approach. Available from http://www.conservation-development.net/rsFiles/Datei/giz-2012-en-integr-ecosys-serv-in-dev-planning.pdf

The ultimate purpose of this game is to help the participants in putting themselves in other's shoes when it comes to different perspective on conservation versus development. The trainer must steer the plenary discussions in a way that all the participants are able to share:

- their perspective on the issue that was discussed and
- how they felt challenged by a different perspective

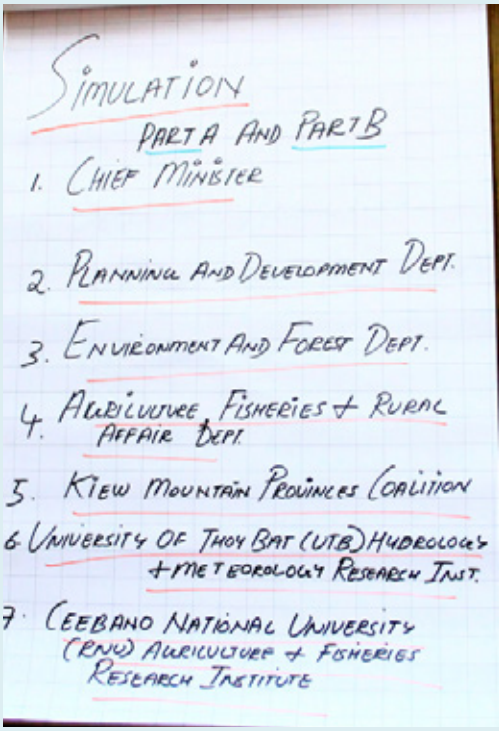
Then lead a discussion to converge various perspectives to the common agenda of human wellbeing and a balanced approach.

Material required:

Handout 2: Bakul Simulation handouts or Ceebano Simulation handout (Section 3)

There is another simulation exercise – "Prioritizing climate change adaptation measures: Development planning in the state of Ceebano", which required the same process as the simulation of Bakul, following the specific instructions provided in the Handout 3 and Handout 4 available in Section 3

Important: In such simulation games, there should not be any judgment or concluding remark by the trainer. The only objective to be achieved by the trainer is to steer the process in a way that the participants get to know the issues at hand, and everyone gets a chance to share their perspective in the plenary.




Complex
Site
Water, Sand,
Birds,

2.4 MODULE 3

Mainstreaming coastal and marine biodiversity into overall development and environmental planning

Learning outcomes

After completing this module, the participants will be able to:

- appraise the need for mainstreaming biodiversity in different sectors and development programmes
- demonstrate the use of tools such as environmental impact assessment (EIA), strategic environment assessment (SEA) and marine spatial planning (MSP)
- critically analyse existing efforts and impacts of mainstreaming biodiversity concerns into sectoral and cross-sectoral strategies, plans and programmes
- prioritize sectors, on the basis of their understanding, where mainstreaming of coastal and marine biodiversity is of utmost importance.

Summary

This module provides the conceptual background and introduces the tool for mainstreaming biodiversity. To ensure that biodiversity-related issues and concerns become a part of the larger development planning process in the country, there is a need to incorporate it into policies, strategies and action plan. There is also a need to use science-based tools to understand the impact that projects can have on the environment and ensure that spatial planning incorporates measures for conservation of coastal and marine biodiversity.

Key messages

- Current knowledge on the main drivers of biodiversity loss leads to the conclusion that most often the drivers of biodiversity loss are situated in the sectors outside the 'green sector'. Therefore, identifying and measuring the impact of these drivers at the national, regional, and global level will assist with mainstreaming biodiversity into all sectors
- At the core of the concept of 'mainstreaming' lies the fact that like any relationship, the interlinkage between biodiversity and other sectors and processes is also a two-way process, where biodiversity affects the activities of the other sectors and/or is affected by the activities of a particular sector. Whether the relationship will be positive or negative, depends on the degree to which the activities are carried out, keeping biodiversity in mind.
- Ideally, biodiversity policy should not be seen as independent of sectoral policies, but rather sectoral policies should be seen as an instrument to implement national biodiversity goals.
- To ensure that development is planned and implemented with biodiversity in mind, impact assessment is being used as an important tool. This include EIA, which is already a mandatory requirement in India supported by law, and SEA, which is still in its infancy and purely voluntary. These two differ in scales and objectives.
- There is a need to enhance the focus on developing impact prediction tools for biodiversity, which will not only standardize the impact prediction process for biodiversity but will also help the decision makers in making accurate decisions on the impacts of projects on biodiversity.

Key terms

Mainstreaming biodiversity, Environmental Impact Assessment (EIA) Strategic Environmental Assessment (SEA), Marine Spatial Planning (MSP).

2.4.1 Session 1: What is mainstreaming? Why mainstream?

Topics to be discussed

Duration: 30 minutes

- Facilitate the participants, through a game, in relating to the real-world situation and reflect on the challenges in front of them as MPA /conservation manager. The last part of the game brings out the importance of mainstreaming biodiversity, as the solution.

Methods

- Start with a game: 'Turtles on a Beach.' [detailed method in the box below]
- PowerPoint Presentation
- Knowledge Cafe: Where exactly mainstreaming is required? In this knowledge cafe, the trainer can divide the participants in groups. Each group shall be given details of a ongoing flagship scheme on livelihoods, infrastructure development etc. Each group shall brainstorm the areas in that scheme where biodiversity conservation is affected, and therefore needs to be addressed while implementing the scheme. The knowledge cafe will be played by letting each participant discuss the schemes of other groups as well.

Material required:

- Powerpoint presentation
- Flipchart and markers for the Knowledge Cafe

Turtles on a Beach

The instructor separates the students into two groups. Group 1 plays the role of turtles and forms 70 per cent of the class, while the remaining 30 per cent plays the role of obstacles. Members of Group 1, playing the role of turtles, are given the task of slowly stepping toward one end of the room, each holding in front a single pen in one hand. Group 2 is instructed to take away the pens from Group 1 or stand in their path or both, making the turtles slowly turn away and then continue their journey toward one end of the room. Once the students of Group 1 have their pens taken away from them, they slow step to get another pen and repeat the process for some time.

Once the game begins, the instructor will notice some of the students grabbing more pens or even not allowing other students to pass at all in the excitement. The instructor reassures the students about their roles, and the game continues. The instructor should only stop the game when some amount of frustration is noticed in Group 1 or when the game reaches a tipping point.

At this point the instructor should ask the students to stop briefly, reflect on the situation and narrate their experience. Typically the students come up with their personal experience of frustration during the game. The instructor then relates the game to the real-world situation and helps students reflect on the challenges faced by the protected area manager/conservation manager, who is responsible for conservation of turtles but has little or no control over the threats faced by the turtles. These threats are pollution, physical obstacles and strangling in fishing nets and are due to some activities of various sectors, e.g., the fisheries, shipping, tourism and coastal afforestation.

The game resumes with new roles assigned by the instructor. Some of the inhibitors turn protectors, and they help the turtles reach their destination.

2.4.2 Session 2: Basic concepts and instruments of mainstreaming

Topics to be discussed

Duration: 1 hr

- What is meant by the term 'mainstreaming?' Why is mainstreaming required?
- What is an 'ecosystem approach' and its principles
  - How does mainstreaming takes place? and overview of the enabling conditions, some concrete examples on how mainstreaming will look like in the real world,
  - Public awareness and support as mainstreaming tool

Methods:

- Interactive lecture
- Discussion on the case studies in the form of Fish-Bowl or Knowledge Cafe

Material required:

- Powerpoint presentation
- Flipchart and markers for the Knowledge Cafe

2.4.3 Session 3: Impact assessment as a legal instrument for mainstreaming biodiversity

Topics to be discussed

Duration: 1 hr/ 2 hrs

- What is EIA, and why is it important?
- When is an EIA required?
- The legal basis of EIA: The EIA notification within the Environment Protection Act
- The process of EIA: screening, scoping, impact assessment, stakeholder consultation, environment management plan
- How to assess the extent to which biodiversity is included in the EIA process?
- How is the environmental impact of a project on the coast assessed?
- What is Strategic environment assessment (SEA) ? Why is required? how is it different from an EIA? How is SEA conducted?
- Marine spatial planning (MSP) ? Why do we need MSP? and the process of MSP.
- Use of GIS and remote sensing to support the mainstreaming tools

Methods

- Interactive lecture using the PowerPoint presentation

Material required

- PowerPoint presentation

2.4.4 Session 4: Sectoral standards, codes of conduct, guidelines, certification schemes and good practices as mainstreaming tools

Topics to be covered:

- Difference between standards, guidelines, code of conduct and good practices
- Marine products certification: an overview of the Marine Stewardship Council
- Using mainstreaming tools to make our surroundings inhabitable: Clean beach certification,
- Using mainstreaming tool to bring in a balance between conservation and development: Eco-tourism guidelines, urban biodiversity, integrating biodiversity into the fisheries sector etc.

Methods:

- Interactive lecture with short films on various subjects as covered in this session

Material required:

- PowerPoint Presentation, Case studies as handouts, Projector with sound system to play the films

2.4.5 Session 5: Exercise to analyse an EIA report using a set of biodiversity criteria

Topics to be discussed

Duration: 2 hrs

(The case studies to be provided to the participants a day before)

- What does an EIA report looks like? What are the different sections of an EIA report?
- To what extent is biodiversity included in the EIA process in India?

Method (case study analysis)

- The participants come prepared in the session, as they were given the EIA report , in groups, and the biodiversity criteria handout in the previous session/ a day before and they had enough time to read it.
- Each group analyses the information in the EIA report and points out the relevance, efficiency and context of the report.
- The participants then make a case for or against the report in a brief presentation with regard to the inclusiveness of biodiversity.

Material required

- An EIA report from an area known to the trainer (preferably).
- The Handout 5 in Section 3, providing a checklist of biodiversity inclusiveness indicators that will be used by the participants to analyse the EIA report.[8]

2.4.6 Session 6: Role play to highlight the stakeholder consultation process in the EIA process

Topic to be discussed

Duration: 2 hrs

EIA process and role-interest of various stakeholders in it

Methods

A role play will be conducted as follows:

- The trainer provides participants with a map that provides details of the zonation plan of a coastal area, indicating the protected areas, human settlements and other geographic details.
- The trainer divides the class into five groups:
  - The EIA consultant group (state-level EIA agency)
  - The state and district administration
  - The Ministry of Environment, Forests and Climate Change and the state-level national parks division
  - The local community and NGOs
  - An infrastructure development group that is preparing for a major port project that will cover half the island
- The groups work on the following activities.
  - The local community looks for potential areas for their activities, such as fishing, drying, agriculture, shrimp farming, constructing residences, repairing boats repairing boats, and demarcates these on their map.

8 Neeraj Khera and Ajay Kumar (**2010**) Inclusion of biodiversity in environmental impact assessments (EIA): a case study of selected EIA reports in India. *Impact Assessment and Project Appraisal*. 28 (3): 189-200.

- The infrastructure development group plots on the map the areas of development that will potentially be most profitable, e.g., coastal roads, highways, ports and residential towers.
- The administration group have 5-year plans and chart land use: schools, hospitals, roads, jetties and transport and communication networks.
- The Ministry of Environment, Forests and Climate Change and the state-level national parks division identify and demarcate MPAs on the basis of the biodiversity of the area.
- The EIA agency prepares the reports for the infrastructure development group for their activities.

- After the group work, the trainer calls for a 10-minutes break. During this break, the members of the EIA group the consult the rest of the groups to understand the potential impacts of the proposed infrastructure projects on the ecology and the socioeconomic condition of the local community.
- The EIA group then finalizes its report.
- All the groups are invited to a stakeholder workshop that is to take place in the district collector's office. They enact the scene at the meeting\.
  - The EIA consultants present the EIA report and seek comments from the stakeholders present. Apart from the groups mentioned, the stakeholders at the meeting include:
  - Representatives of the gram panchayat
  - school teachers
  - fish workers
  - boat owners
  - health workers.
  - The EIA agency presents the report, and the stakeholders discuss it.
  - The stakeholders seek more information on the possible impacts and the mitigation plan of the project. The trainer gives 15–20 minutes for this discussion.

Expected Outcome

The project will only go forward if it is signed by 50 per cent of those present. The trainer encourages the participants to take an informed decision on the basis of all the parameters mentioned in the foregoing.

Material required

- Case study discussions and role play instructions handouts

2.5 MODULE 4

Coastal and Marine Protected Areas and Sustainable Fisheries Management

Learning outcomes

After completing this module, the participants will be able to:

- explain the term 'Protected Area' and describe different types of natural protected areas based on their management and resources uses
- differentiate between the key characteristics and factors governing a terrestrial protected area and an MPA
- describe different types of management models for MPAs and challenges associated with each outline the key principles of sustainable fisheries management
- explain the difference between small-scale and commercial fisheries and their respective relevance to coastal and marine biodiversity
- appreciate the intricate relationship of fishing and biodiversity conservation
- appreciate the role of sustainable fisheries in ensuring effective conservation of coastal and marine

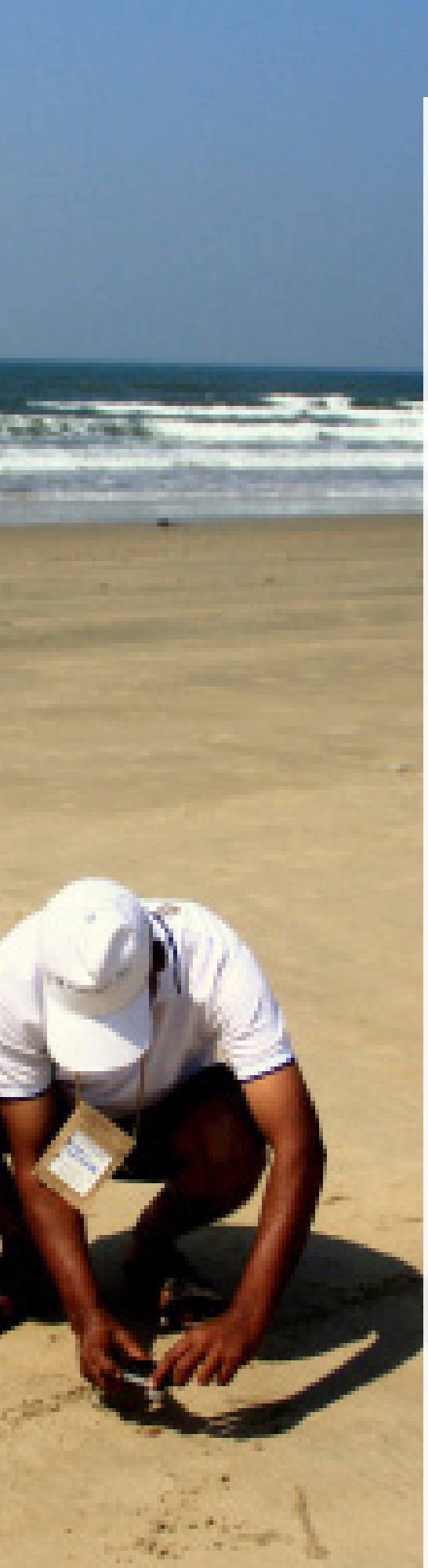
Summary

This module provides much needed information on the basics of fisheries management, principles and practices of sustainable fisheries management in and around marine protected areas, and on the marine protected areas (MPAs). The modules provides insights into the differences between them and terrestrial protected areas, the categories and types of MPAs and their management systems and an overview of the elements of sustainable fisheries management. This module covers the key issues of fisheries and indigenous communities in the context of MPAs. Apart from providing information on different types of MPAs in India and their locations, the module elaborates benefits of and challenges for MPAs.

Key messages

1. A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means is mandatory to achieve the long-term conservation of nature with associated ecosystem services and cultural values.
2. One of the most effective means for protecting marine and coastal biodiversity is through the establishment and proper management of Marine Protected Areas (MPAs) . Marine Protected Areas cover many different types of protection. Some are "no-take zones or protected zones" that are essential to enable fish stocks to recover while others allow multiple use of their resources. MPAs protect key ecosystems such as coral reefs. Not only do they act as safe breeding ground for fish, they also generate tourism, which in turn bring jobs. Creating more Community Managed MPAs would enhance the fl ow of benefits to local people.
3. India has designated four legal categories of protected areas viz. National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves. India has created a network of PAs representing all its 10 biogeographic regions. A total of 693 protected areas have been established comprising, 103 National Parks, 525 Wildlife Sanctuaries, 61 Conservation Reserves and 4 Community Reserves, besides designating 26 wetlands as Ramsar sites[9]
4. In India, PAs that fall-in whole or in part-within swath of 500 m from the high tide line and to marine environment are included in the Marine Protected Area Network. Based on this definition, there are 25 Marine Protected Areas present in the Peninsular India and more than 106 MPAs in its islands. Of the 24 MPAs

9 Source: http://wiienvis.nic.in/Database/MPA_8098.aspx



in the peninsula, Gulf of Mannar Marine National Park, Sundarbans National Park, Gulf of Kutchch National Park, Bhitrakanika National Park, Coringa Wildlife Sanctuary, Chilika Wildlife Sanctuary have unique marine biodiversity and provide a range of services to local communities around these MPAs[10]

5. Protected Area managers face a wide range of challenges, from insufficient funding and support, to antagonism from local communities. With good communication and awareness programmes, this trend could be reversed. Involving the local communities in the management of marine protected areas would help generate sustainable livelihoods through revenue from fishing and tourism
6. India has vast potential for fisheries in view of our long coastline of about 8,000 kms apart from the inland water resources and India is the second largest producer of fish in the world contributing to about 5.43% of global fish production. It has been recognized as a powerful income generator and is a source of cheap protein besides being a source of foreign exchange earner[11].
7. Under an Ecosystem Approach to Fisheries, the usual concern of fisheries managers – the sustainability of targeted species – is extended to address the sustainability of ecosystems upon which the fisheries depend, which include people and fish stocks. Ecosystem Approach addresses both human and ecological well-being and merges two paradigms: protecting and conserving ecosystem structure and functioning; and fisheries management that focuses on providing food, income and livelihoods for humans[12].
8. The main challenges facing marine fisheries development in the country include development of sustainable technologies for capture fisheries, yield optimization, infrastructure for harvest and post-harvest operations, landing and berthing facilities for fishing vessels and uniform registration of fishing vessels.
9. Artisanal fishing (or small-scale fisheries), uses small inshore vessels and/or fixed gear (e.g., coastal traps, gill nets and cast nets) and whose purpose is to catch fish and other organisms for their won consumption and sale (Pauly 2013[13]). Commercial fishing is the activity of catching fish and other seafood for commercial profit, mostly from wild fisheries. It provides a large quantity of food to many countries around the world, but those who practice it as an industry must often pursue fish far into the ocean under adverse conditions. Large-scale commercial fishing is also known as industrial fishing.

Key terms

Marine protected areas; participatory management; stakeholders' consultation; sustainable fisheries management.

10 Source: http://wiienvis.nic.in/Database/MPA_8098.aspx

11 Source: http://agritech.tnau.ac.in/fishery/pdf/Annual_Report_12_13.pdf

12 Source: http://www.fao.org/3/b-bo081e.pdf

13 Source: Pauly, D. 2013. What are 'small –scale fisheries'? Oceana Magazine, Spring, p. 13. Peruvian Anchovy Case: Anchovy Depletion and Trade". Trade and Environment Database. 1999. Retrieved 2012-01-05

2.5.1 Session 1: What are marine protected areas (MPAs)?

Topics to be discussed: Duration: 1 hr/ 3 hrs

- What are protected areas?
- Why are protected areas important? (biodiversity wealth, ecosystem services, the social and economic roles played by the MPAs)
- What are MPAs? MPAs in the overall context of coastal and marine ecosystem services, coastal livelihoods, climate change and disasters
- How are MPAs different from terrestrial protected areas? What are the various kinds of MPAs? Is managing the MPAs different from managing terrestrial protected areas? What are the conflicts that arise in MPAs? How are they different from the conflicts in terrestrial protected areas? What are the soft laws related to MPAs?

Methods

- Interactive lecture using PowerPoint presentation

Material required

- PowerPoint presentation
- Video links
- Handouts on MPAs

2.5.2 Session 2: How are MPAs managed?

Topics to be discussed Duration: 1 hr/ 2 hrs

- Where are the MPAs in India located? How much area do the MPAs cover? The history of MPAs in India, legally protected areas under national law (reserved forests, wildlife sanctuaries, national parks, community reserves, conservation reserves, new categories (biodiversity heritage sites, biosphere reserves), cultural landscapes (World Heritage sites, sacred groves)
- Some famous MPAs in other parts of the world
- An overview of the guidelines for MPAs
- General structure of the plan of an MPA (MPA management plan)
- Why inclusive management of MPAs is important and relevant
- Institutional setup for managing MPAs in India
- Examples of MPA management: the case of the Gulf of Mannar Marine National Park, the case of an urban MPA- Thane creek, in Mumbai

Methods

- Interactive lecture using the PowerPoint presentation

Material required

PowerPoint presentation, video links

2.5.3 Session 3: Sustainable fishing practices in and around MPAs

Topics to be covered — Duration: 2 hr/ 4 hrs

- How do the practices of fisheries affect coastal and marine biodiversity in general and the management of MPAs in particular?
- What are the methods used to monitor the fishing practices in and around MPAs?
- Global good practices on sustainable fishing concept of stock and Maximum Sustainable Yield (MSY), population dynamics,

Methods

- Interactive lecture using the PowerPoint presentation
- Play the video of Global Fishing Watch: Global Fisheries Watch data Web site (http://www.globalfishingwatch.org/) and video (https://www.youtube.com/watch?v=fn2JXmCUo30)

  Global Fishing Watch is the product of a technology partnership between SkyTruth, Oceana and Google that is designed to show all the fishing activity in the ocean that can be tracked. This interactive Web tool—currently in the prototype stage—is being built to enable anyone to visualize the global fishing fleet in space and time. Global Fishing Watch will reveal the intensity of the fishing effort around the world, one of the stressors contributing to the precipitous decline of our fisheries.
- End the session with a Fishbowl for brainstorming about the ways and methods of fishing practices, their impacts, coastal livelihoods and other issues from different perspectives

Material required

- Training Handbook
- PowerPoint presentation
- Video links INTERNET connection, audiovisual system
- Instructions for Fishbowl
- Field excursion to a fisheries village/ fish-market and, if possible, the participants can be taken to a fishing vessel like a trawler to get the first-hand experience of fishing practices and associated livelihood issues

2.5.4 Session 4: Challenges and trade-offs with the protection-oriented coastal management

Topics to be discussed — Duration: 1hr/2hrs

- Overfishing and associated practices and issues
- An ecosystem approach to fisheries- some good practices
- Participatory planning of MPAs keeping in mind the fisheries practices

Methods

- Interactive lecture using PowerPoint presentation to provide an overview
- A game to demonstrate an enabling environment for effective management of MPAs (see box on next page).
- Fishbowl method where participants and resource persons discuss conservation-livelihood issues in the context of MPAs

Game of MPA management

In this game two situations were created. In one situation the stakeholders of the MPA were given a set of instructions on their roles.

The first situation

The actors were the following:

1. MPA manager
2. Tourist
3. Industrialist
4. Representative of the local community
5. Fish workers
6. Researchers
7. Poachers

They were given these instructions

MPA manager

You are an MPA manager.

You have no scientific staff for carrying out a detailed assessment and monitoring of your MPA.

You have poor relations with the local community.

You think that people from the local community have no right in the MPA.

Tourist

You are a tourist. Go inside the MPA and enjoy yourself without caring for the ecosystem.

Industrialist

You are an industrialist.

You own a petrochemical plant at the periphery of the MPA.

Representative of the local community

You are a representative of the local community.

Talk to the MPA manager and ask for your traditional rights.

Fish workers

You are a fish worker, and you have been fishing inside the MPA for a long time.

Go inside the MPA and start fishing.

Researchers

You are a researcher.

You study corals inside the MPA.

You do not give data to the MPA manager.

Poacher

You are a poacher.

Go inside the MPA and steal corals and shells.

You can only steal by counting till 10, and only then can you walk away with your stolen items.

The second situation

The second situation had the following roles:

1. MPA manager
2. Tourists
3. Industrialist
4. Representative of a local community
5. Fish workers
6. Researchers
7. Poacher

They were given these instructions:

MPA manager

You are an MPA manager.

You have monitored data scientifically in your MPA.

You have a consensus on fishing rights with the local community.

You have been able to involve the local community in your MPA planning.

Tourists

You are a responsible tourist.

You care about the damage caused to the habitat because of your tourism activity.

You report to the MPA manager when you spot a poacher and any illegal activity.

Industrialist

You are an industrialist.

You own a petrochemical plant at the periphery of the MPA.

Your plant has a responsible environment plan and a strong CSR policy.

Representative of the local community

You are a representative of the local community representative.

You support this MPA as you are dependent on the ecosystem services for subsistence and your livelihood.

Fish workers

You are a fish worker, and you conduct fishing activities outside the boundary of the MPA.

You do not fish in the breeding season.

Researchers

You are a researcher, and you study corals inside the MPA.

You give data to the MPA manager for effective management.

Poacher

You are a poacher.

Go inside the MPA and steal corals and shells.

You can only steal by counting till 10, and only then you can walk away with your stolen items.

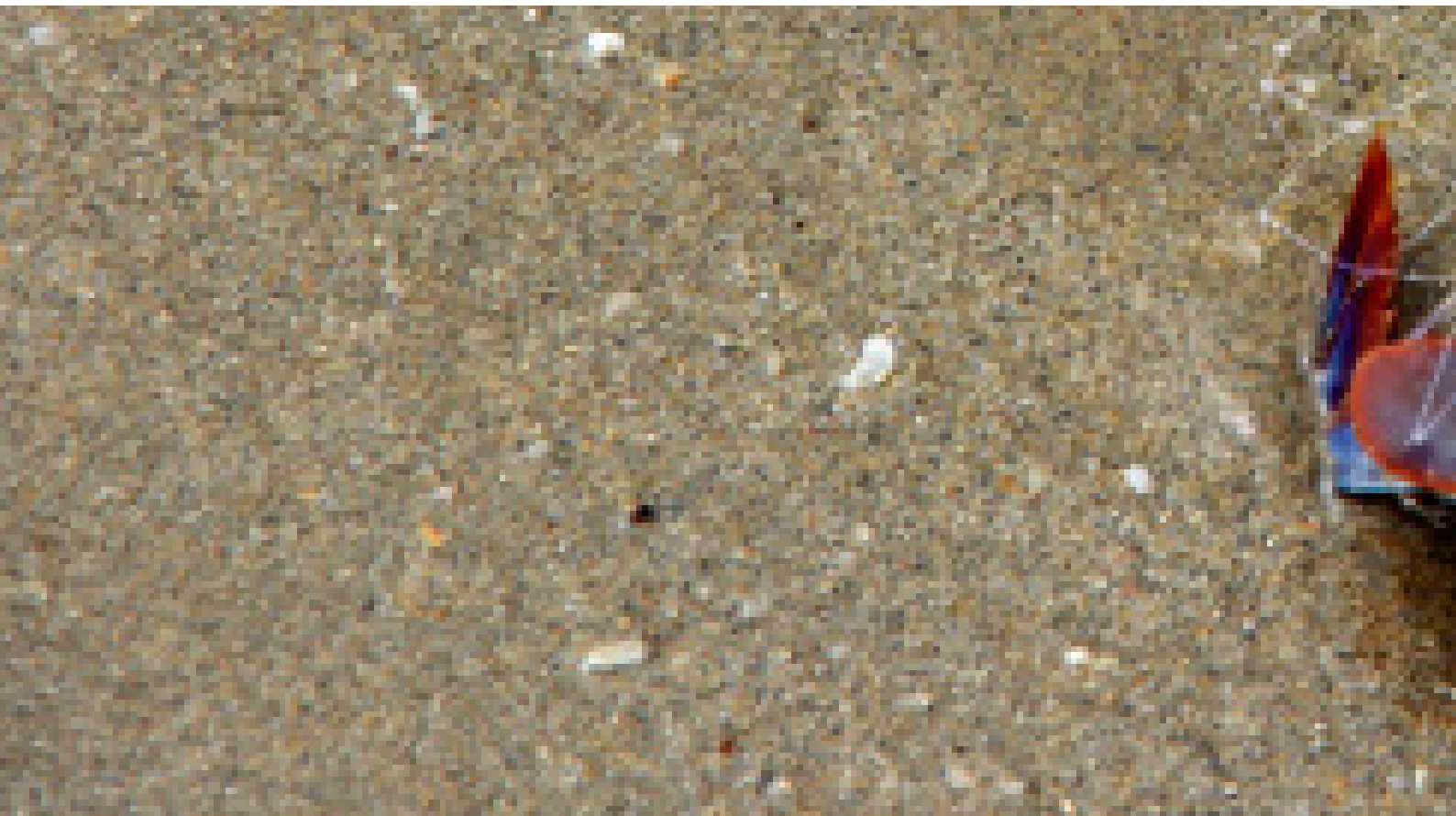
How to conduct this game

- The trainer asks for volunteers for each role. Each actor is given the instructions for the first scenario as confidential instructions, though the roles being evident.
- The trainer creates the situation by identifying the MPA boundary in the room. These can be marked by a circle of chairs or a chalk mark on the floor.
- The trainer then asks the MPA manager to stand inside the MPA boundary, while all the others remain outside the MPA.
- The trainer indicates when to begin the game, and each actor takes up his or her role after clearly understanding the part.
- Five minutes into the game, the trainer asks everyone to freeze in whatever position he or she is.
- It has been observed that at this stage in the game, there is a chaos in the group
- The trainer then asks everyone to assess their positions and talk about their experience with the others. For example, the MPA manager explains to the observers and the trainers the activities of the different actors inside the MPA and how easy or difficult it was to deal with all those present.
- The trainer now gives the confidential instructions for the second situation to the same actors. The trainer repeats the game with these new instructions, where the boundaries of MPA are more clear and stakeholders are more positive and supportive towards MPA management and comply with the guidelines and policies for MPA management.
- At the end of the second cycle, the trainer asks everyone to assess their positions and talk about their experience with everyone, explaining the difference between the first and second situations.

Additional information is provided by the trainer to ensure that there is a clear distinction between the two situations. In the first situation, the MPA manager is faced with challenges, and hence the management is not effective. In the second situation, the participatory processes and stakeholder engagement are in place, and therefore the MPA is effectively managed.

Material required

Handout, PowerPoint presentation, video links, cards and pen



2.6 MODULE 5

Governance, Law and Policies for Managing Coastal and Marine Ecosystems, Biodiversity and Protected Areas

Learning outcomes

After completing this module, the participants will be able to:

- outline key Global conventions and treaties relevant to biodiversity- in general, and coastal and marine biodiversity- in particular
- outline the laws and policies relevant to coastal and marine biodiversity in India
- explain- in detail- the legal and policy framework in India governing the MPAs
- appreciate the importance of identifying the appropriate legal regime for managing MPAs

Summary

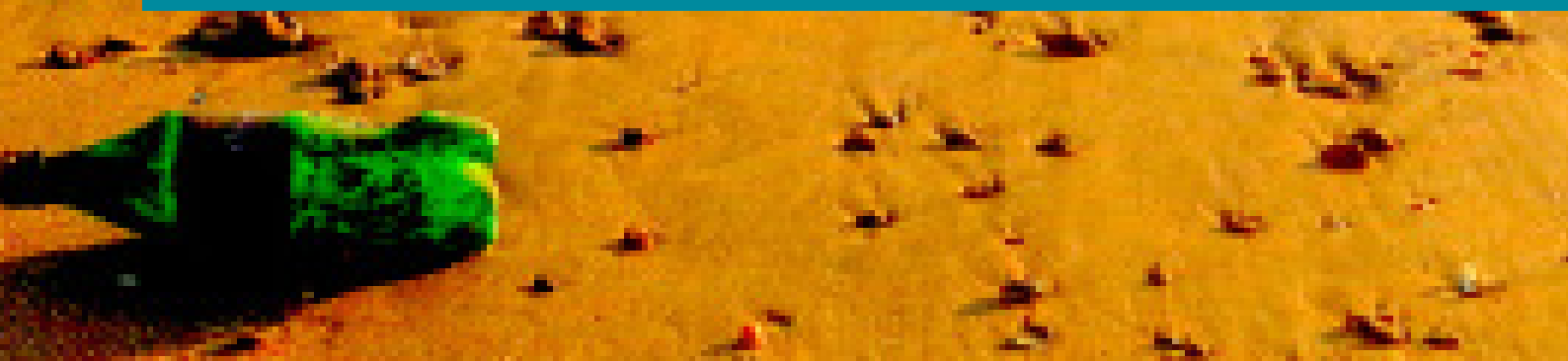
This module gives an outline and a brief history of the diverse governance, legal and policy frameworks for managing coastal and marine ecosystems. The contents are presented in two sections. The first section deals with global conventions and guidelines that provide a framework to the maritime countries to draft national policies and legislation for conservation and management of coastal and marine habitats and species. The second section provides an overview of the major policies, law, rules and guidelines in India that relate to coastal and marine biodiversity conservation.

Key messages

- A large number of global treaties, conventions, self-obligations and guidelines target coastal and marine environments, habitats and species, and provide a framework to the countries to frame their national policies and legislation.
- Despite a large body of global and national conventions, policies and laws, several aspects of coastal and marine habitats and species are not fully covered. Implementation, compliance and enforcement of these regulations remain a challenge.
- For involvement of local communities, civil society and media is crucial in implementation and compliance of the legal provisions, it is imperative to develop laws that are inclusive.

Key terms

Global conventions; treaties; multilateral environment agreements; Indian policies and laws for the protection of coastal and marine biodiversity; protected areas under the Wildlife Protection Act; coastal regulation zone; and fisheries policies.



2.6.1 Session 0: Role play: Courtroom scene to simulate the compliance and enforcement of legislation

Topics to be discussed

Duration: 1 hr/ 3 hr

The participants are given (Handout 7 in Section 3) a fictitious case where some environmental norms have been broken by an industry in a coastal area, as a background. Participants play the courtroom scene before sessions 1 and 2. After the trainer completes sessions 1 and 2 as described above, the courtroom scene is repeated. Now, participants have information on the laws and policies and they get time to prepare.

If the trainer does not have sufficient time, then it is recommended to run the role play only once as session 3 only. However, it is strongly recommended to run it twice to experience the benefits that a good understanding of law and policies can bring to a MPA manager.

2.6.2 Session 1: The global context and genesis of environmental conventions: Global governance of coastal and marine biodiversity

Topics to be discussed — Duration: 1 h/ 3 hrs

- Relevance of field-level MPA manager's understanding of global and national governance, policies and legislation
- A brief background to the global environmental conventions
- An overview of the key global conventions and treaties related to coastal ecosystems and biodiversity:
  - CBD
  - UNFCCC
  - The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
  - The Convention on Wetlands of International Importance (the Ramsar Convention)
  - The United Nations Convention on the Law of the Seas (UNCLOS)
  - Convention on the Conservation of Migratory Species of Wild Animals (CMS, or Bonn Convention)
  - The International Convention for the Prevention of Pollution from Ships (MARPOL)
  - FAO Code of Conduct for Responsible Fisheries
  - UNESCO World Heritage Convention
  - Hyogo and Sendai Frameworks for Action towards disaster management
  - Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks
  - Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (The London Convention)
  - The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
  - International Convention for the Regulation of Whaling (ICRW), 1946
- New and emerging issues such as "Areas beyond national jurisdiction (ABNJ)"
- Aichi Biodiversity Targets : Global as well as Indian targets

Methods

- Start the session with a documentary on MPAs, underwater diversity, threats and solutions:
  - **LOREN LEGARDA: Philippine Marine Biodiversity Documentary:** In a bid to raise awareness on the current condition of the country's marine life and underwater resources, Senator Loren Legarda, Chair of the Senate Committee on Environment and Natural Resources, launched a video documentary on Philippine marine biodiversity. This video documentary is the third collaboration between Legarda and internationally acclaimed director Brillante Mendoza following "Buhos" and "Ligtas". Also featured are marine videos taken by underwater videographer Robert "Bobbit" Suntay. The project was done in partnership with the Department of Environment and Natural Resources (DENR) and the Philippine Information Agency (PIA).threats faced by coastal and marine ecosystems

    https://www.youtube.com/watch?v=8-D3z3t-0Dw

- Interactive session with PowerPoint presentation to cover the information on global conventions
- End the session with a Knowledge Café

Material required

- AV system for the documentary
- PowerPoint presentation with several beaks and interactions in between. A few minutes break is recommended for allowing the participants to absorb the information and reflect on it, after discussing each convention/law.
- Handouts, pens, cards, and flipcharts for Knowledge Café

Material Required:

- Handouts on Role Play (see section 3)
- Flipchart for process documentation
- Cards/ sticky paper and pens for the participants to use as badges depicting their respective roles

2.6.3 Session 2: Policies, law and guidelines at national level

Topics to be discussed — Duration: 2hr/ 6hr

- An overview of the Indian policies and legislation relevant to coastal and marine biodiversity, ecosystems and protected areas:
  - Wildlife (Protection) Act, 1972 and MPAs
  - Environment Protection Act (1986) and MPAs
  - Ecosensitive Zones
  - Biological Diversity Act, 2002 and MPAs
  - Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
  - Biosphere Reserves
  - The Water (Prevention and Control of Pollution) Act
  - Coastal Regulation Zone Notification, 2011
  - Wetlands (Conservation and Management) Rules, 2010
  - The Indian Fisheries Act
  - The National Action Plan on Climate Change
- Concept of territorial waters and the exclusive economic zone
- New developments in the legal coverage for MPAs (This will introduce the participants to the need for and availability of flexible legal mechanisms to engage local communities into conservation of coastal and marine biodiversity in India.)
  - Biodiversity Heritage Sites
  - State-level notifications
- Description of institutional framework for implementation, effecting compliance and enforcement of key laws and policies in coastal and marine areas
- Some important cases related to coastal and marine biodiversity

Methods

- PowerPoint presentation with several beaks and interactions in between. A few minutes break is recommended for allowing the participants to absorb the information and reflect on it, after discussing each convention/law.
- Give time for private study to participants.
- After the break, organize a structured quiz, after dividing the participants into four groups.
  - The quiz will help the participants in remembering and retaining the overview information for each convention and law such as the full name, a bit of history and the scope. Retaining this information is very useful for the field-level MPA managers.

Material required

- PowerPoint presentation
- Flip charts, and seating arrangement for the quiz

2.6.4 Session 3: Role play: Courtroom scene to simulate the compliance and enforcement of legislation

Topics to be discussed

Duration: 1 hr/ 3 hr

The participants are given a fictitious case where some environmental norms have been broken by an industry in a coastal area, as a background. Participants play the courtroom scene before session 1 and 2. After the trainer completes sessions 1 and 2 as described above, the courtroom scene is repeated. Now, participants have information on the laws and policies and they get time to prepare.

The courtroom scene will be played by the participants, preferably in presence of an environmental law expert.

The case as the background for the role play:

Water World is a large entertainment park that exists on an island and is owned by Bharti Industries. This water park is built on mangrove land belonging to the local indigenous community. The indigenous community were promised jobs and compensations but never received the full compensation and were provided menial jobs.

The community head has approached an NGO for assistance. The NGO has taken their case and approached the courts. The NGO has named Bharti Industries and the Municipal Corporation in their petition. The forest department is assisting the NGO in their appeal. Present in the court are a political party leader, a marine scientist, an environment management consultant and the press. The courtroom will be presided over by a three-member bench of judges.

The process

There are two situations in this simulation.

- In the first situation (Session 0), the participants are given the case details and have to assume various roles.
  - Half of the participants are given the roles as described in the case above, viz. NGO representative, judges, Municipal corporation representatives etc.
  - Half of the group is given the role of observers to report on the ongoing case.
  - They enact the court scene without sufficient knowledge about the various acts and conventions.
  - After the courtroom scene, the participants are given a few minutes to reflect on their own views, ideas and feelings on the case, their own performance, on other's performance etc, and to put it down on a piece of paper for their own reading. They don't need to share it with others or the trainer.
- The trainer delivers sessions 1 and 2 and organizes a quiz, in their respective time-frames
- In the second situation (Session 3), the participants are given the case details again and they resume the same roles as they had in session 0
  - The courtroom scene is repeated withexactly the same set of persons playing the same role.
  - The trainer ensures that the participants playing the role of judges are proactive throughout and ask relevant questions to the clients specifically on the laws, acts and conventions they are basing their arguments on. If required, the trainer can supply questions on small chits to the judges to ensure the effectiveness of this process.

- A fishbowl session is organized where the participants, who played the active roles, share their experiences on the case and their own performance in an objective manner, and they also share how they felt- in the first vs third round. The participants who were observers share their observations if they noticed change in the arguments presented by the active participants in session 0 and session 3.

The outcomes and learning

This role play helps MPA managers in associating relevant laws and policies with issues pertaining to coastal and marine areas that they come across. It helps them experience the benefits that a good understanding of law and policies can bring to a MPA professional.

Material Required:

- Handouts on Role Play (Handout 7 in Section 3)
- Flipchart for process documentation
- Cards/ sticky paper and pens for the participants to use as badges depicting their respective roles

2.7 MODULE 6

Assessment and Monitoring of Coastal and Marine Biodiversity

Learning outcomes

After completing this module, the participants will be able to:

- Identify key coastal and marine ecosystem and species in India
- Describe the key assessment and monitoring methods used for coastal and marine habitats and species
- Appreciate the magnitude and distribution of coastal and marine biodiversity- a global overview, in India, and an in-depth understanding of their State
- Conduct under-water / coastal survey to monitor marine and coastal habitat features and species
- Report based on the monitoring data

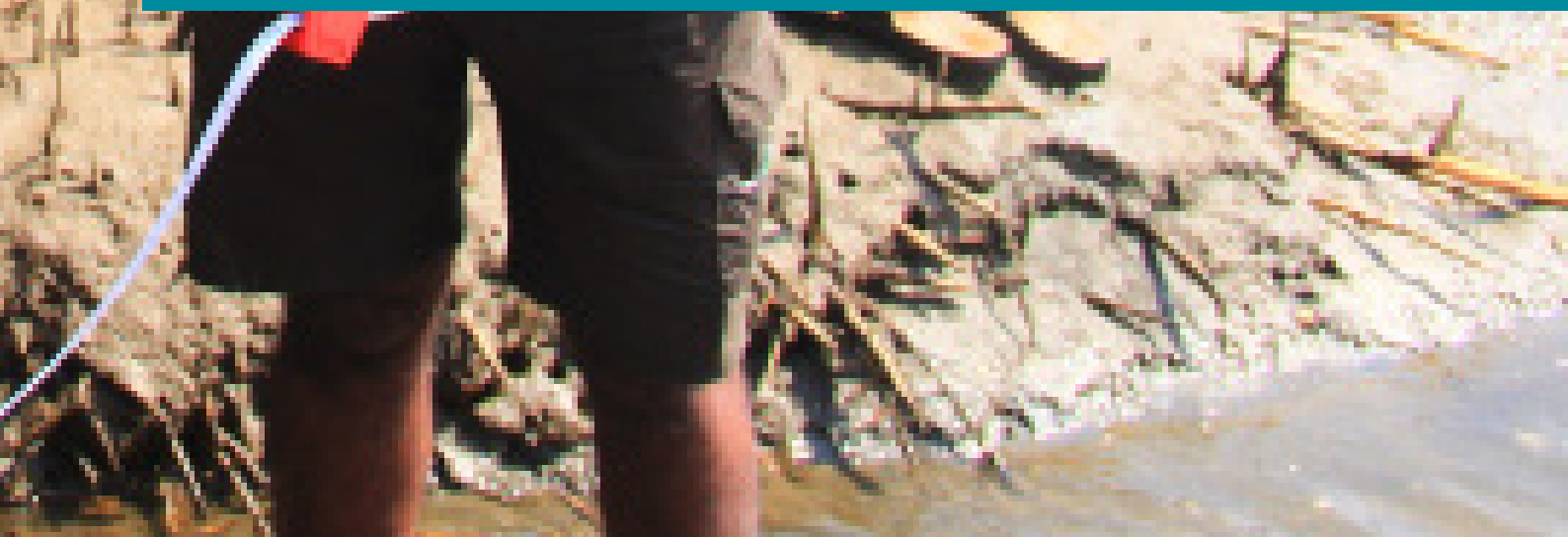
Summary

This module has been designed to provide the required information on different coastal and marine ecosystems, critical marine habitats, their importance and assessment. It will also help participants in identification of species found in coastal and marine ecosystems. This will equip them with assessment methodologies of different critical habitats species. This module will be delivered through different learning techniques, comprising class room session, and hands-on assessment practice in contained pool as well as open-water conditions. Hands on experience will be provided on all important topics covered in this module for better understanding of the coastal and marine habitats and the associated species. As a part of this module, exposure visits will be organized to beach, intertidal and mangrove ecosystems.

Key messages

- While the focus on global and ecosystem processes is indeed imperative, controlled field experiments and carefully designed surveys and monitoring programs could be completely misinterpreted if analysis of data obtained via scuba is not also incorporated.

- Scuba created a scientific revolution by providing direct access to underwater habitats composing a large part of the biosphere. While there have been many important specific advances, we believe that the overarching benefit of scuba for marine population, community, and ecosystem ecology has been to facilitate the direct observation and manipulations of individual organisms and their surrounding conditions.



2.7.1 Session 1: Conceptual background to assessment and monitoring

Topics to be covered: Duration: 2 Hours

- Why assessment and monitoring is required ad how does it contribute to effective management of coastal and marine protected areas and conservation planning
- Difference between Inventory, assessment and monitoring
- Critical Habitat Assessment & Monitoring- basics and definitions
- Biodiversity data for decision-making, effective management planning of MPAs and relevance of data and information,

Methods:

- Interactive lecture
- Expert inputs in a brainstorming session on the need for collecting biodiversity data for effective management of coastal and marine protected areas

Materials:

- PPT

2.7.2 Session 2: Planning for assessment and monitoring

Topics to be covered: Duration: 6/8hrs

- Defining the objectives of research and monitoring
- Examples of research and monitoring in MPAs
- Getting familiar with critical habitats and species

Methods:

- Interactive lecture
- Virtual tour on Internet or field excursion to at least one critical habitat as discussed in the class-room session
- Group work on species identification, followed by a quick competition to identify species and habitats

Material required:

- Pictures of various species and habitats for the identification session

2.7.3 Session 3: Conducting the assessment

Topics to be covered: Duration: 10hrs/ 16 hrs

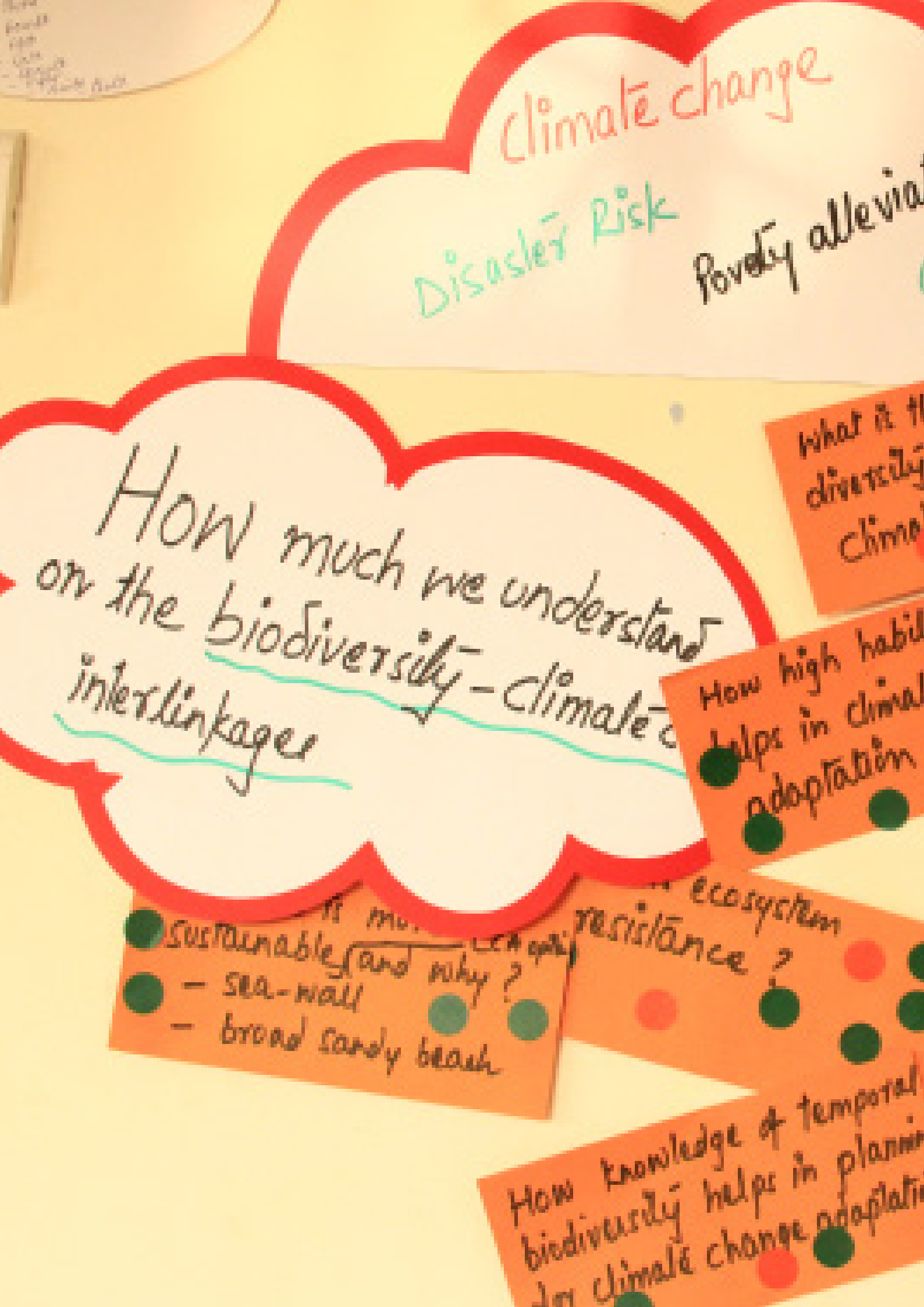
- Assessment and monitoring methods for key coastal habitats and species
  - Estuarine ecosystem
  - Assessment of mangrove habitat
  - Assessment methods of sea turtles
  - Assessment methods of coastal birds
- Assessment and monitoring of key marine habitats and species
  - Sea grass habitat assessment
  - Coral reef assessment
  - Fish diversity assessment

Methods:

- Interactive lectures at the beginning of each field session
- Demonstration of Line Intercept Transact (LIT)/video LIT/ Quadrat/Photo method in shallow water
- Demonstration of use of methods for Mangroves and estuarine ecosystem Assessment and monitoring
- LIT/video LIT/ Quadrat/Photo method in Field (coral reef and sea grass/seaweed) using SCUBA diving or snorkeling
- LIT/video LIT/ Quadrat/Photo method in Field (mangroves and intertidal ecosystem)
- Data Entry and Analysis methods

Material required:

- PPT
- Pool facilities for demonstration in contained facility
- SCUBA and boat facilities for filed demonstration
- Computers/ software for data analysis


climate change
Disaster Risk
Poverty alleviat
How much we understand on the biodiversity-climate- interlinkages
What is th diversity Clima
How high habit helps in climat adaptation
ecosystem resilience ?
sustainable and why ?
- sea-wall
- broad sandy beach
How knowledge of temporal biodiversity helps in planni for climate change adaptati

2.8 MODULE 7

Effective Management Planning of Coastal and Marine Protected Areas

Learning outcomes

After completing this module, the participants will be able to:

- Outline the key elements of a MPA management plan
- Describe in detail the steps involved in developing a MPA management plan
- Define management effectiveness withexamples
- Appreciate management effectiveness in the ecological, social and economic context
- develop operational plan for MPA management based on the principles of management effectiveness
- conduct – in teams and under supervision- management effectiveness evaluation .

Summary

This module provides an overview of the management experiences in terrestrial as well as marine environments. A description of the elements of management plan and guidelines for effective protected area management along with the key indicators form the major part of the learning from this module. Case studies help participants in applying concepts and guidelines to the real life cases.

Key messages

- An MPA must have clearly defined objectives against which its performance is regularly checked, and a monitoring programme to assess management effectiveness. Management should be adaptive, meaning that it is periodically reviewed and revised as dictated by the results of monitoring[14]
- Effective management of MPAs requires continuous feedback of information to achieve objectives. The management process involves planning, design, implementation, monitoring, evaluation, communication and adaptation. Evaluation consists of reviewing the results of actions taken and assessing whether these actions are producing the desired outcomes[15].
- Evaluation is a routine part of the management process and is something most managers already do. The evaluation of management effectiveness builds on this existing routine[16]
- Management Effectiveness can be measured in three distinct ways: - Biophysical indicators, social indicators and governance indicators[17]
- Involving local communities (and other stakeholders) is essential in MPA management. It is particularly important in the marine environment to collaborate with those using the neighbouring sea areas because of the inter-connected nature of the sea in which actions in one area impinge on another[18].

Key terms

Effectiveness evaluation, Management effectiveness evaluation (MEE), monitoring and indicators

14 (Source: PARKS 8(2), 1998 in Kelleher 1999)

15 [Source: Pomeroy et.al 2004]

16 [Source: Pomeroy et.al 2004]

17 (Source: Pomeroy, et. al. 2004)

18 [Source: Kelleher, 1999]

2.8.1 Session 1: Guidelines and framework for preparing management plans for coastal and marine protected areas

Topics to be covered: Duration: 2 Hrs

- Lessons from Wildlife Management
- Lessons from Marine Protected Areas Management
- Developing MPA management planning: contents of an MPA management plan based on IUCN guidelines for Marine protected areas

Methods:

- Interactive lecture for the lessons from existing management strategies
- For the MPA management plan, the participants an be divided into groups based on their choice of the area for which they would like to develop a management plan. During the entire module, the participants work on this chosen area to apply various concepts and principles of effective management planning and evaluation. The division of groups must be flexible. If there is a participant, who wishes to work on her/his MPA alone, it can be facilitated.

Material required:

- PPT
- Existing management plans and additional information on the chosen MPAs for group work
- Handouts of the MPA content framework
- Flipchart, cards and pens for Knowledge Cafe Flipchart and marker pens

A Game to understand the importance of an effective management planning

- The trainer takes coloured cards of varying colours and sizes, and uses varying coloured marker to make any symbol on each card, before cutting each card into more than 3-4 pieces with the help of a pair of scissors.
- The cards are spread on the floor. The trainer retains some of the pieces with her/him, and gives these to the co-trainers or some participants.
- The participants are invited to pick any card randomly.
- The task ahead for the participants to find out their group participants who will have the pieces to complete the card.
- The role of the co-trainers or the participants who were given some pieces by the trainer would be passive in the beginning, i.e. let others find out which piece they have. Even when their group seeks their cooperation to join the pieces together, they will be completely non-cooperative and will try to negotiate in lieu of giving their piece.

The participants are invited to reflect on their experience. The trainers facilitates the discussion on the following lines:

- The role of even a seemingly neutral and small stakeholder becomes important.
- Negotiation skills are a very important skill set for conservation managers.

2.8.2 Session 2: Guidelines and framework for evaluating management effectiveness of coastal and marine protected areas

Topics to be discussed: Duration: 2/4 hrs

- What is management effectiveness? Why evaluate management effectiveness?
- Framework for evaluating management effectiveness: The Management Cycle,
- Detailed discussion on all six elements are important in developing an understanding of how effectively protected areas are being managed
- Special discussion on the proposed Minimum Standards for Protected Area Management, and indicators for evaluating effectiveness- ecological, socio-economic and governance
- Implementing evaluation

Methods:

- Interactive lecture
- A Knowledge Cafe, where groups work on evaluating the effectiveness of their MPAs using the effectiveness indicators

Material required:

- PPT

2.8.3 Session 3: MPA governance: ways of interaction, Cooperation with NGO sector, MPA and local communities, Working with cultural and religious leaders

Topics to be covered: Duration: 2/4 hrs

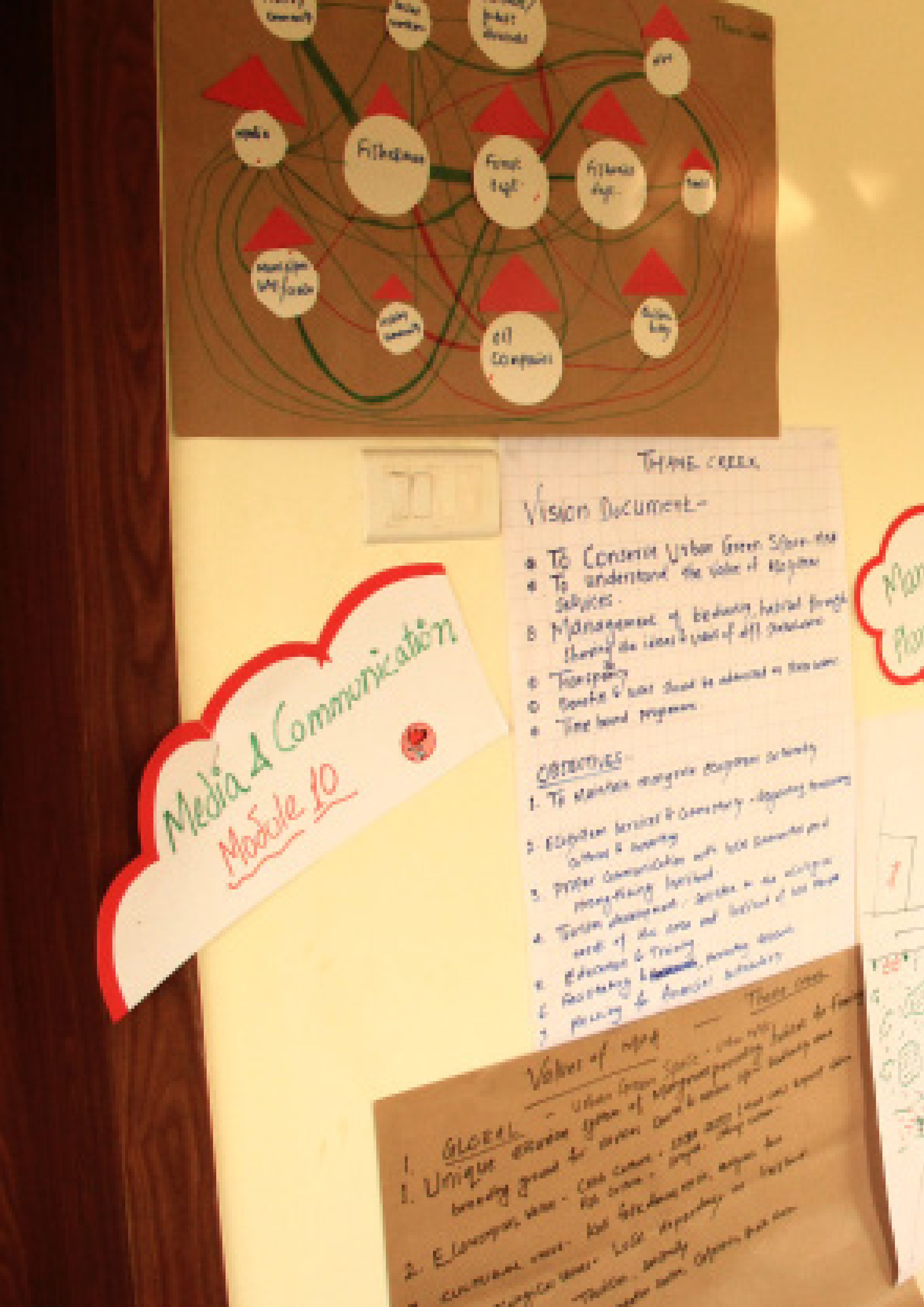
- Why involve local communities?
- Key steps in receiving community support
- Choosing the type of management partnership most suitable to the situation
- Case studies

Methods:

- Participants are given a day's time to prepare
- A Fishbowl can be organized where participants are able to share their views and critically analyse together various forms of community involvement
- The trainer can also pick one case study on governance, and implement a role play on it by giving various roles to participants.

Material required:

- PPT
- A Case study
- Flipchart, cards and pens for Knowledge Cafe


THANE CREEK
Vision Document-
OBJECTIVES
Media & Communication
Module 10
Value of MAP
GLOBAL

2.9 MODULE 8

Communicating Coastal and Marine Biodiversity Conservation and Management Issues

Learning outcomes

After completing this module, the participants are able to:

- analyse the reason for less coverage of coastal and marine biodiversity issues in the popular media
- communicate their ideas and concerns on technical issues on coastal and marine biodiversity and MPA management in simple language
- choose the right communication methods to communicate with different sectors and stakeholders

Summary

This module will help field-level MPA managers understand how media looks at coastal and marine conservation issues. Since conservation is not in the media priority and MPAs come into news only when an event happens, the module will help managers to gain knowledge and skills for engaging media effectively on conservation issues. The module will introduce the different tools for media relations, their strengths and limitations. It will also discuss how to use these tools during a crisis communication situation.

Key messages

- A lot more needs to be reported to save and conserve the marine world in every which way. Journalism needs a sea-change in attitude towards coastal issues and its coverage.
- Only media has the potential of taking the message on conservation of coastal and marine biodiversity to the public. And when the public is interested, they would enthuse/persuade/force the policy makers to be interested in the issue.
- The media has strengths, but also limitations. The most important limitation is that the media works with catchwords. The second limitation is that there are certain time periods when the media has interest on environmental issues, and you need to catch those periods to ride in with the journalists' attention. There are two other limitations – what you are communicating has to catch the reporter's attention, and it has to further catch the attention of the editor.
- Knowing how and why people value the natural environment can help environmental managers manage their sites more effectively. At a more general level, the values that people place on nature affect which types of habitats and species are deemed important to conserve. This, in turn, affects where and when conservation takes place.
- Social media can provide great insights into how people interact with nature—most people enjoy the outdoors with a camera and often share their photos on networking sites. Websites like Flickr contain millions of photographs of species and habitats that people have taken and chosen to make publicly available. Importantly, many of these photographs are "geo-tagged" (i.e., the location where the photograph was taken is recorded, give or take 10 meters). The photos visitors take and share, then, can provide valuable information for researchers and conservationists.
- Trust and communication bridges have to be built with journalists. This will help strengthen MPA manager's understanding of the ways and means to strengthen communication with media during crisis situations.

Key terms

Media priorities; reaching the public and policy makers through the media; media for outreach; print, electronic and online media; the Indian Readership Survey (IRS)/TRP ratings; editorial policies; varied presentation styles for different media; media campaigns.

2.9.1 Session 1: An introduction into the existing coverage of coastal and marine issues by media and related issues

Topics to be discussed

Duration: 1 hrs/

- Why we do not hear much about the coasts from the media? Why the media is more interested with land than with the sea and the coasts?
- Why is engaging with media an important issue to be considered by the MPA managers?
- An overview of the growth of media, and an insight into how media works, its limitations and challenges.
- Principles of Strategic communication for media relations, and tools for engaging media- traditional as well as new and social media
- Case studies to understand role of media in highlighting conservation issues.

Methods

- Powerpoint presentation
- A short film
- An Internet browsing session to explore further on the case studies presented in the handbook

Materials

- Powerpoint presentation
- Film on media reporting

A film on MEDIA reporting on coastal and marine biodiversity

The media are the most powerful entity on Earth because they control the minds of the masses. The dereliction in media towards nature has led to limited awareness among us, which has had a dreadful impact. Nature is the most precious gift to us and its significance is experienced every day. If the media decide to prioritize the nature's momentousness, mountains can be moved for affinity towards nature. The movie talks about the same.

https://www.youtube.com/watch?v=vrUNOqnglxo

2.9.2 Session 2: How to make the communication products for enhanced visibility of coastal and marine conservation issues?

Topics to be discussed — Duration: 1 hr/ 2 hrs

- Writing skills: from self documentation to reports, blogs, and scripts for short conservation films
- Establishing and maintaining social media platforms such as Facebook, Blog and posting educational content on coastal and marine issues.
- Making films using mobile phone or camera

Methods

- Hands-on work on writing session
- Field visit for shooting of videos and capturing photographs
- Interviews to get information for the media products
- Editing sessions with computer and Internet for finalizing films, blogs, and social media platforms.

Materials required

- Individual mobile phones/ camera for photos/ videos
- Paper, pen for writing sessions
- Computer and Internet for social media platforms

Assignment

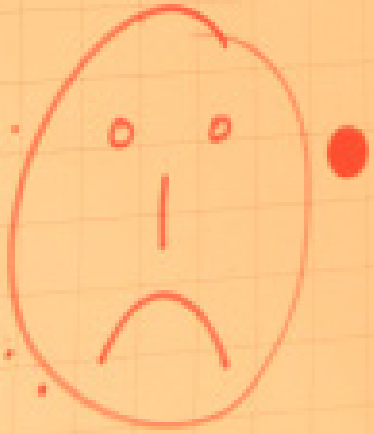
- Participants work on any topic of their interest on one type of new media, i.e. Video, blog, Facebook page/posts on the Facebook page https://www.facebook.com/mpamanagers, work on a press release etc. and present their products in a final session organized in the form of a workshop.

SECTION 3

Tools and handouts

This section provides the formats for various handouts and instructions to be provided during sessions. The trainers can customize and take printouts for their own use or for the participants, as the case may be.

Feedback - Day 2



3.1 Participant Feedback: Daily reflection

Handout on reflections: Formats for participants to capture experiences

Session	What is easy for me?	What is challenging for me?	What do I want to change in training methods/ daily schedule/ etc.*	Conclusions – what do I want to do with my insights?

* "No sessions after lunch" is not a valid option ☺

3.2 Participant Feedback: End of the course

"A sample feedback form

Dear participant,

Thank you for your participation in the course on "Coastal and Marine Biodiversity Conservation and Protected Area Management for Field-Level MPA Managers".

We request your support in contributing to further improvement of the curriculum, and Training material. To help us further enhance the alignment of such course with your needs and the needs of the future course participants, we would request you to participate in this survey and share your experience and any suggestions you might have for improvements.

Please read the following statements and indicate your level of agreement by marking the appropriate box.

You have six possible answers ranging from "totally disagree" to "totally agree".

If you cannot answer or do not wish to, please tick the "no answer" box.

Thank you for your help and support!

Your trainer

1. Working and learning methods

	Totally disagree	Totally agree	No answer
The content and outcomes of the individual sessions were clear throughout.			
Participants were able to bring their own experience and examples into the sessions			
The material (e.g., presentation, handbook, handouts etc.) helped me to understand the content better.			
The working and learning methods were appropriate to the tasks and suitably varied.			
I could relate the examples to the context of my own work and life.			

Self-assessment: How far do you think you have achieved the learning outcomes of the training?

Learning outcomes	**Degree of achievement**				
I am able to:	Perfectly	Easily	To some extent	Not so well	cannot
Outline concepts and issues related to managing coastal and marine biodiversity, and demonstrate the types and relevance of different categories of MPAs in different scenarios					
differentiate clearly, between the ecological and socio-political context, conservation approaches and legal-policy framework between terrestrial and coastal-marine PAs.					
conduct assessment and monitoring of coastal and marine habitats and species and prepare field reports					
develop, under supervision, operational plan for MPAs based on management effectiveness guidelines					
be open to acquiring more knowledge on coastal and marine biodiversity relevant issues					

explain the key differences between landscapes and seascapes; and appreciate the difference in socioeconomic and political contexts of terrestrial and coastal-marine ecosystems and their management.					

What competences or expertise have you acquired in addition to the training course's explicit outcomes?

Knowledge:

.....

.....

Skills:

.....

.....

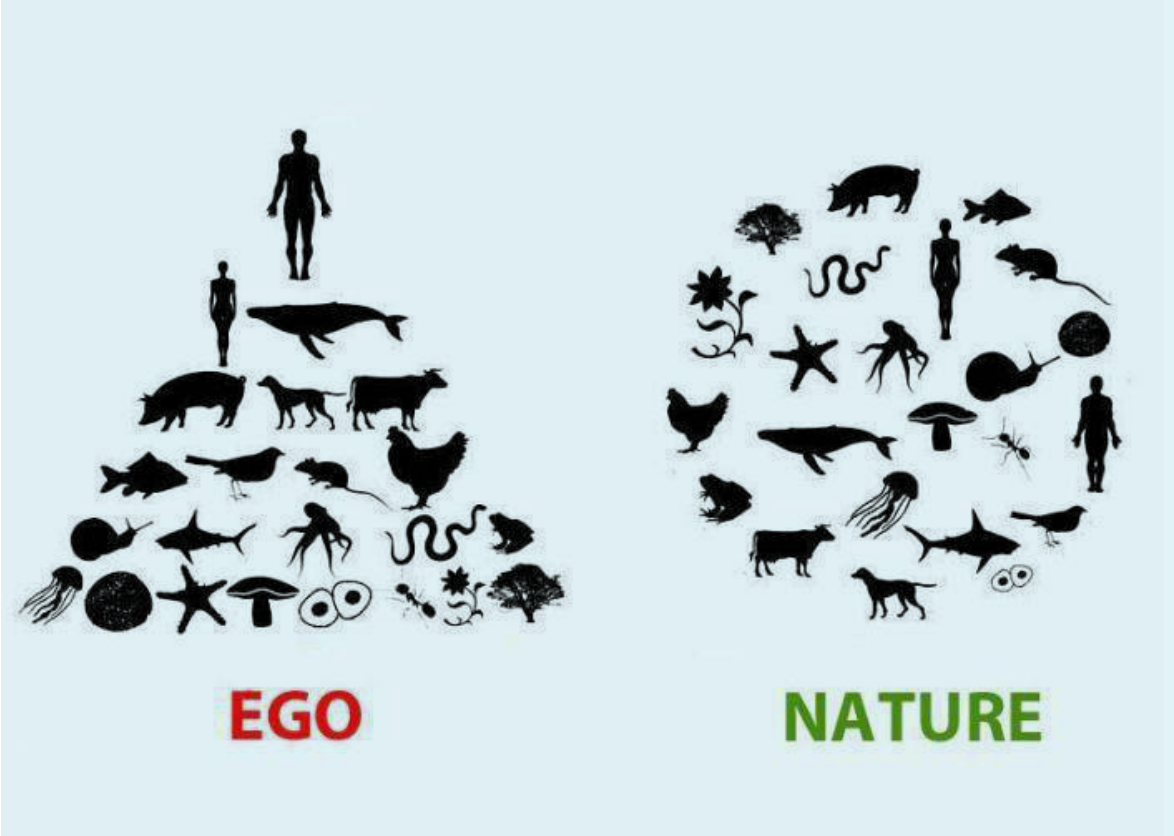
Values

.....

.....

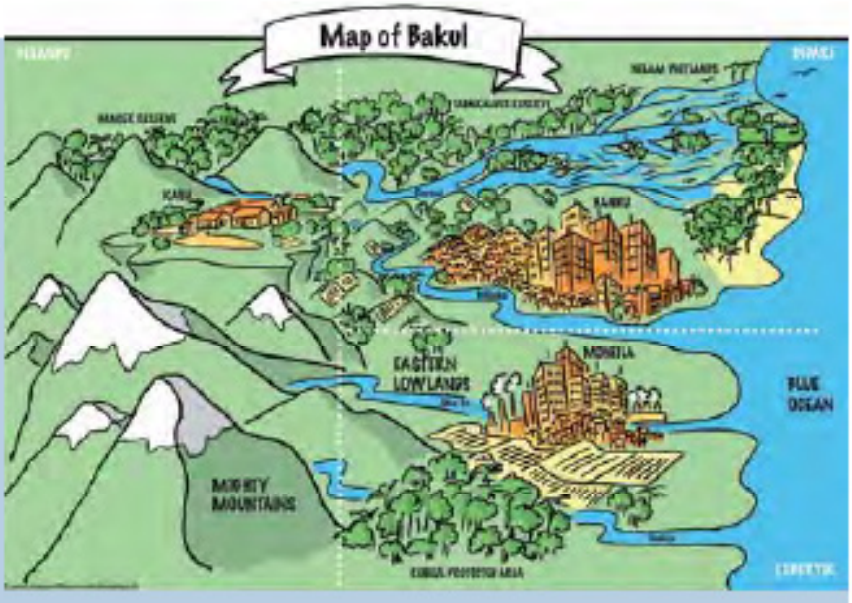
3.3 Module-wise handouts

Handout 1: Sheet for reflecting on your understanding of the existing scenario (Module 1)



Handout 2:Simulation exercise on Ecosystem Services: Bakul

[Source: GIZ (2012)Training manual on Integrating Ecosystem Services in development Planning]



Indare Provincial Development Plan, Bakul

The country of Bakul has been "created" for the purpose of illustrating how an IES approach can be applied. Although it is a fictitious place, the conditions that are described draw heavily on experiences gained from the real world.

Bakul is an upper middle-income country (as defined by the World Bank), with a market-oriented economy. Its per capita income is estimated at US$5,000 and it has a relatively high Human Development Index score of 0.72.

Historically, the country's economic performance has depended heavily on exports, which provide hard currency to finance imports and external debt payments. Although these exports have provided substantial revenue, income is unequally distributed. According to the latest national poverty assessment, 30% of the population is classified as poor, including 10% that is extremely poor. The incidence of poverty is particularly marked among the indigenous, forest-dwelling population who occupy highland areas, while income gaps have also been growing among smallholder farmers in rural areas. The agricultural sector generates more than half of the national GDP.

Bakul is a small and beautiful country with great natural and cultural diversity. The Mighty Mountains split the country into two main geographical regions: the western highlands and the eastern lowlands. Hanku, the largest city and capital of the country is located on the eastern coast in the province of Indare. The coastal city of Moneila in the south-eastern province of Exportul is however considered the economic centre of Bakul. Around the country there are other commercial centres, the most important of which is Kalu, in the western highlands province of Belandu. Economic activity in Belandu is dominated by dairy farming in the highland pastures of of the Milaku River watershed.

Recent months have been especially hard for the province of Indare. The dry season lasted longer than usual, and the Milaku River almost dried out. Now the wet season has been unusually rainy. Over the last month a large part of the Milaku River catchment area and even the capital Hanku have seen the worst flooding in living memory, forcing the evacuation of some settlements and a shutdown of the water purification plant.

During the last meeting of the Indare Provincial Development Committee, several members expressed their concern about recent events. This resulted from their growing awareness of the ways in which environmental degradation has exacerbated – and in some cases even caused – the Province's vulnerability to disasters. The current Provincial Development Plan was thought to need revision, to try and avoid such events in the future.

- Promote biofuels by encouraging private sector participation in crop production and the construction of a biofuel plant.
- Improve the water quality and supply, through the construction of a larger water purification plant for Hanku.
- Enhance timber export.
- Develop ecological and community-based tourism.
- Improve the quality and productivity of cacao for export.
- Enhance food security.

Indare Provincial Development Plan, Bakul

The initial decision to undertake an IES assessment was made by members of the Indare Provincial Development Committee. They prioritised six aspects of the development plan (promote biofuels, improve water quality and supply, enhance timber export, develop ecological and community-based tourism, improve cacao for export and enhance food security), and were particularly concerned about ensuring that these goals would be robust to the possibility of natural and manmade disasters and stresses in the future. The Committee were, initially, particularly concerned about the effects of watershed forest and wetland loss, and the decline in indigenous crop and livestock breeds and associated land management practices.

Having identified these needs, the Committee convened a larger meeting which involved decision-makers, planners and technical experts from the parent ministries of Committee members. Researchers from Hanku University were also invited to attend, as were representatives from key national development NGOs and major international donors working in the forestry, water, agriculture and tourism sectors in Bakul. At this stage, little or no consultation was however carried out with land and resource users in Indare Province or elsewhere, although invitations were extended to nation-wide industrial associations and urban consumer groups.

This meeting came up with a preliminary overview of how ecosystem services might be linked to the Provincial Development Plan goals, prepared a stakeholder map, and formulated a shared vision of how environmental sustainability and development goals should be linked. As a result of the meeting, an Ecosystem Services and Development Taskforce was convened, bringing together individuals from the organisations and agencies mentioned above. The taskforce was mandated to oversee and guide the IES process, and manage communications with the institutions that the members represented. One staff member from each of the Environment Unit, Agricultural Development Unit, Hanku University and the Provincial Development Committee (the chair of the taskforce), were seconded to work on the IES assessment over the next 3 months. Subsequently, a preliminary communications and stakeholder engagement plan was prepared by a sub-group of the taskforce.

Over the course of several meetings, the taskforce developed a workplan for the IES assessment. This was submitted to the Provincial Committee, who approved it with minor modifications and agreed to allocate sufficient budget resources to implement it. A shortlist of required technical expertise was prepared. Some of the staffing was offered as in-kind contributions by the taskforce members. In addition, terms of reference were prepared for key tasks and technical inputs, and put out for tender by consultancy companies.

Excercise for Participants: Screening and prioritising ecosystem services

- *How does the development plan depend and impact on ecosystem services?*
- *Which are the main stakeholders that are affected by ecosystem services?*
- *How are the benefits and costs distributed between different groups?*
- *Do potential areas of conflict, competition or synergy emerge?*
- *Which are the priority ecosystem services for the development plan, and why?*

What to do?

Having defined the scope and boundaries of the assessment, and having agreed on the process that it will follow, the second step identifies the most ways in which the development plan depends on and impacts ecosystem services. Throughout, there is a strong focus on the stakeholders that are affected, and on the distribution of costs and benefits between different groups.

By the end of step 2, there should be a clear understanding of the ways in which the development plan depends on impacts ecosystem services. A list of priority ecosystem services that are most relevant to the assessment will also have been identified. Prioritisation is necessary as it helps to reduce the complexity, time and cost of the assessment. In most cases it will be impossible (and not necessary) to consider each and every ecosystem service.

Useful Hints

- *Try to minimise complexity, especially if resources are limited: it is just a screening exercise. Remember that you can come back to this step if new information come to light.*
- *If the dependence and impact assessment becomes too difficult, revisit step 1 to narrow or refocus the scope.*
- *Consider applying additional criteria if the first attempt at prioritising ecosystem services fails to narrow the list to five.*
- *Consider at least one ecosystem service that might play an important role by the most vulnerable social groups.*

How to do it?

Check Annex

In order to establish which ecosystem services are linked to your development plan, a basic screening exercise should be carried out. First, a list of all the ecosystem services that are associated with the development plan should be compiled. The annex (Table 7) provides a comprehensive checklist of ecosystem services, which can assist in this.

Then, key dependencies and impacts of the development plan should be identified, using the following definitions (adapted from OECD 2008):

- The development plan depends on an ecosystem service if the service is an input or it enables, enhances or regulates the conditions necessary for a successful outcome. For example, a coastal development plan may depend on the storm protection services provided by wetlands or mangroves. In other words, if the level of dependency is high and the ecosystem service becomes scarce or degrade, the development plan (or at least part of it) may fail or become more costly.
- The development plan impacts an ecosystem service if actions associated with it alter the quantity or quality of a service. For example, the coastal development plan may also affect the storm protection services provided by wetlands or mangroves. Impacts can be positive (enhance the quality or quantity of an ecosystem service) or negative (decrease the quantity or quality of an ecosystem service).

A simple matrix can assist in screening (Table 2). Each row corresponds to an ecosystem service, while each column relates to a key development goal or activity. Assigning a score to each of the cells according to dependence/impact (0 = neutral, 1= minor relevance, 2= moderate to major relevance) provides a way of prioritising the most important ecosystem services. Those with the highest aggregate score are the ecosystem services which display the highest dependencies or impacts in relation to the development plan, and should be prioritised in further steps of the assessment.

Table 2 Matrix for identifying development plan impacts and dependencies on ecosystem services

Ecosystem services	Development goals or activities								Sum of scores
	A		B		C		... etc. ...		
	Depends	Impacts	Depends	Impacts	Depends	Impacts	Depends	Impacts	
Provisioning Services									
Food									
Raw materials									
Fresh water									
Medicinal resources									
Regulating Services									
Local climate and air quality regulation									
Carbon sequestration and storage									
Moderation of extreme events									
Waste-water treatment									
Erosion prevention and maintenance of soil fertility									
Pollination									
Biological control									
Supporting Services									
Habitats for species									
Maintenance of genetic diversity									
Cultural Services									
Recreation and mental and physical health									
Tourism									
Aesthetic appreciation and inspiration for culture, art and design									
Spiritual experience and sense of place									
Sum of scores									

Most of the information required to identify and score ecosystem service dependencies and impacts can be gathered through a combination of literature review, data analysis, and expert/stakeholder consultation. Even though, at this stage, only very rapid screening of ecosystem services is taking place (a detailed review will be carried out in step 8), it should be noted that a large body of information and opinions typically lies "behind" the matrix. It is important to keep notes on why particular scores were assigned, recording the nature and magnitude of the ecosystem dependencies and impacts, who is affected by them, and what kinds of knock-on effects and implications they might have. This information will prove vital in carrying out further steps of the assessment, which look at the prioritised ecosystem services in more detail.

It is also useful to bear in mind that the ranking and scoring of ecosystem service dependencies and impacts is not a "scientific" one, in the sense that it will be determined largely by the people who have participated in the screening exercise. For this reason, it is desirable to be as inclusive as possible in your consultations, and to make sure that the opinions and perceptions of different stakeholders are well-balanced. There is also likely to be a high level of uncertainty in some areas, due to a lack of data and knowledge about ecosystem processes, interactions and causality. While every effort should be made to gather the most accurate and up-to-date data (within the time and resources available to the study), it should be recognised that there will inevitably be many gaps and imperfections in the evidential base for the matrix.

When carrying out the scoring, distributional concerns should always be considered. You should take into account the fact that some parts of society depend heavily on ecosystem services, and may have few or other options or sources of fallback if they are degraded or lost. There may in addition be other, political, social or developmental reasons why special attention should be paid to particular groups. Where impacts and dependencies disproportionately affect women, indigenous peoples or the rural poor, for example, they may accorded a relatively higher weight. Conversely, where dependencies are associated with illegal or unsustainable practices, or if alternatives are readily available and affordable to the affected stakeholders, a relatively lower weight may be allocated.

Based on the screening, a priority list of ecosystem services should emerge in terms of the dependencies and impacts of the development plan on ecosystem services. The scoring will also highlight potential areas of conflict, competition or synergy, which may result in trade-offs (these will be looked at in detail in the next step of the assessment). While the number of ecosystem services that are of key importance to a given development plan will of course depend on the specific context, as well as on the scope and the complexity of the plan itself, it is desirable to come up with a "shortlist" of no more than five or six ecosystem services for more detailed review and assessment. A larger number of priority ecosystem services will add to the complexity, time and resource demands of the subsequent assessment, and may run the risk of generating results which are neither concrete nor specific.

Expected outputs of above step

- *Matrix showing ecosystem service dependencies and impacts in relation to the development plan.*
- *Notes explaining the scoring of ecosystem services, and elaborating on the nature, magnitude, distribution and evidential basis to ecosystem service/development plan linkages.*
- *Agreed list of priority ecosystem services for further assessment.*

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Based on a preliminary screening carried out by the members of the Indare Provincial Development Committee, ten ecosystem services were identified as being of particular importance to the development plan. Three workshops were subsequently held in order to assess these dependencies and impacts in more detail. One (convened in Hanku) for staff from the Ministries of Forestry, Agriculture, Water and Tourism, a second (hosted by the University of Hanku) drew in key biodiversity and scientific experts, while the third was attended by representatives of local authorities, fishing cooperatives and farming communities.

The workshops resulted in a series of refinements to the list of ecosystem services, and conducted a scoring exercise to determine their importance. After this process was given some coverage in the local press, representatives from indigenous forest-dwelling people approached the Indare Provincial Development Committee to protest their exclusion from the process. A roundtable dialogue was hurriedly held, bringing together community members with the other stakeholders, which added seven more ecosystem services to the list, and highlighted a number of sources of potential conflict and trade-off which had not before been considered.

This process made it clear that the priority ecosystem services for the Indare Provincial Development Plan were food, raw materials, fresh water, moderation of extreme events, erosion prevention and maintenance of soil fertility. Furthermore, it became apparent that:

- The goals of the Indare Provincial Development Plan depend strongly on several ecosystem services. For example, the development of ecotourism and community-based tourism revolve around the conservation of rural coastal and forest habitats, while food security depends on the maintenance of agro-ecosystems, including indigenous crop and livestock breeds and wild pollinator species.
- The development goals also have significant impacts on ecosystem services. Both biofuel and cacao production are, for example, leading to the clearance of grasslands, the pollution and drainage of wetlands, and the replacement of endemic breeds with fuel crops, while timber export promotion is impacting heavily on the integrity of natural forest areas and compromising their ability to deliver essential water-

shed and erosion control funotions.

- There are trade-offs between different development goals. For example, the promotion of biofuels has the potential to undermine both food security and improved water supplies and quality.
- There is competition among development goals regarding ecosystem services. For example, both tourism development and timber production place competing demands on forest lands, conflicts are arising over the use of productive lands for biofuel production and smallholder farming, while wetland drainage and pollution is having devastating effects on the local artisanal fishery.

While most, industrial and livelihood-level, development activities in Indare Province depend in some way on ecosystem services, stakeholders are being unequally impacted by ecosystem degradation and the resultant loss of key services. The most affected groups were identified as being smallholder farmers, fisherfolk and indigenous forest-dwelling communities. The production and consumption activities of these groups are, however, having only low to medium impacts on the provision of ecosystem services.

The illustrative matrix shows the ways in which the Indare Provincial Development Plan depends and impacts on ecosystem services.

	Indare Provincial Development Plan main goals												Sum of scores
	Promote biofuel production		Improve water quality and supply		Enhance timber export		Develop eco/ community tourism		Improve cacao for export		Enhance food security		
	Depends	Impacts	Depends	Impacts	Depends	Impacts	Depends	Impacts	Depends	Impacts	Depends	Impacts	
Provisioning Services													
Food	1	2	0	1	0	1	2	1	2	1	2	2	15
Raw materials	2	2	0	0	2	2	2	1	1	1	1	1	15
Fresh water	2	2	2	2	2	2	2	1	2	2	2	2	23
Medicinal resources	0	1	0	0	0	1	1	1	0	1	1	1	7
Regulating Services													
Local climate and air quality regulation	1	2	1	1	1	1	2	0	2	1	2	1	15
Carbon sequestration & storage	1	2	0	0	1	2	0	0	0	2	0	1	9
Moderation of extreme events	2	2	2	1	1	1	2	1	1	2	2	1	18
Waste-water treatment	0	2	2	2	0	1	1	1	0	0	1	1	11
Erosion prevention and maintenance of soil fertility	2	2	2	0	1	1	1	0	2	2	2	2	17
Pollination	1	2	0	0	1	1	1	0	2	2	2	2	14
Biological control	2	2	0	0	1	1	0	0	2	1	2	2	13
Supporting Services													
Habitats for species	1	2	1	1	1	1	2	1	1	1	1	2	13
Maintenance of genetic diversity	0	2	0	0	0	1	2	0	0	1	2	2	9
Cultural Services													
Recreation and mental and physical health	0	2	0	0	0	2	2	1	0	1	0	1	8
Tourism	0	2	0	0	0	2	2	0	0	1	0	1	7
Aesthetic appreciation and inspiration for culture, art and design	0	1	0	0	0	1	2	1	0	1	0	1	6
Spiritual experience and sense of place	0	1	0	0	0	1	2	1	0	1	0	1	6
Sum of scores:	**15**	**31**	**10**	**9**	**11**	**22**	**26**	**10**	**15**	**21**	**20**	**24**	

Handout 3: Checklist of biodiversity inclusiveness indicators (Module 3)

Source: Adapted from Neeraj Khera and Ajay Kumar (2010) Inclusion of biodiversity in environmental impact assessments (EIA): a case study of selected EIA reports in India. Impact Assessment and Project Appraisal. 28 (3): 189-200

Criteria		Attribute/Indicator
Enough information on the impact area vis-à-vis biodiversity has been gathered	1	Is the location map showing known biodiversity area, urban area, other industrial establishments and projects and distance from coastal area/surface water bodies/ecologically sensitive areas, etc. available?
	2	Has the impact area been described keeping in mind the biodiversity impacts, wherever biodiversity impacts are likely to occur over a larger area?
Baseline study is comprehensive enough to provide a basis for correct impact prediction	3	Have the components of the biodiversity likely to be affected by the project been identified and described sufficiently for the prediction of impacts?
	4	Does the information include listings of endemic and endangered species present within the proposed project area?
	5	Where applicable, does the baseline data identify and enumerate flora and fauna including seasonal variables, e.g. species, migration routes, spawning and breeding grounds?
	6	Has the importance of biodiversity elements present in the impact area been assessed and described?
	7	Were biodiversity experts involved in conducting the study?
	8	Does the method of collection of primary biodiversity data conform to the guidelines of MoEF?
	9	Have sources of secondary data been referred to?
	10	Are gaps and limitations of the baseline biodiversity data indicated and means to deal with them explained?
All the possible impacts on all components of biodiversity are predicted	11	In order to effectively address biodiversity impacts, it is imperative that biodiversity impacts are not merged within the broader category of ecological impacts, or merely as impact on flora and fauna. Therefore, it was a matter of concern if the biodiversity impacts were described in a separate section.
	12	Are direct biodiversity impacts described appropriately?
	13	Are indirect, secondary and cumulative biodiversity impacts described appropriately?
	14	Are short-term/long-term impacts on biodiversity due to air, noise or water pollution described?
	15	Has the significance of the impacts been assessed?
	16	Does the impact on biodiversity cover all the three levels, viz. ecosystem, species and genetic level?
	17	Are the biodiversity impacts predicted in quantitative terms?
	18	Are the biodiversity impacts predicted in qualitative terms?
	19	Are the methods/approaches used to identify the impacts and the rationale for using them described?
An effort is made to effectively involve stakeholders in decision making	20	Were vulnerable stakeholders of the project identified?
	21	Were effective measures taken to inform stakeholders for participation in the discussion?
	22	Were current and potential ecological services provided by the affected ecosystem discussed appropriately with the stakeholders to determine the values these services represent for society?
	23	Were concerns of public regarding biodiversity impacts adequately addressed in the mitigation plan?
Alternatives with least biodiversity damage are available	24	Have biodiversity impacts of the alternative solutions/sites been described and compared with the proposed development and with the likely future conditions in zero-option development?

Effective mitigation measures for the predicted impacts are proposed	25	Is mitigation a part of the project design from the start of the development of the project?
	26	Are mitigation measures proposed to address the biodiversity impacts at all levels, i.e. genetic/species/landscape and all structures trees/shrubs/herbs as well as temporal biodiversity?
	27	Is effectiveness of the mitigation measures addressed and gaps identified?
An effective biodiversity monitoring plan is in place	28	Is a monitoring plan for biodiversity impact proposed?
	29	Are details of the criteria and indicators to be used during the monitoring available in the report?
	30	Have the limitations in monitoring biodiversity been identified and addressed?

Handout 4: Role Play to reflect on the significance of knowledge on law and policies for the Field-Level MPA Managers: (Module 5)

Dear Participants,

Your background information:

- Water World is a large entertainment park that exists on an island and is owned by Bharti Industries.
- This water park is built on mangrove land belonging to the local indigenous community.
- The indigenous community were promised jobs and compensations but never received the full compensation and were provided menial jobs.
- Unhappy with the entire situation, the community head has approached an NGO for assistance.
- The NGO has taken up their case and approached the court.
- The NGO has named Bharti Industries and the Municipal Corporation in their petition.
- The forest department is supporting the NGO in their appeal.

Your present day situation:

- You have a court hearing session today.
- Present in the court are the following
    - Lawyer on behalf of Bharti Industries
    - Lawyer on behalf of NGO
    - Representatives of Bharti Industries
    - The NGO
    - Forest Department officials
    - Representatives of Indigenous community
    - Representative of Municipal Corporation

Apart from the above, also present are:

- A political party leader,
- A marine scientist,
- An environment management consultant

And

- Representatives of a newspaper
- Representatives of a few TV channels
- Independent environmental journalists

The case will be heard by a three-member bench of judges.

Your Task: Preparation: (15 min)

- Some of you can assume the roles of the stakeholders present in the course
- Some of you can assume the role of media professionals as mentioned above
- Rest of you will be present as observers
- You will be given 15 minutes to prepare for your chosen role. You are free to act as per your understanding of the case based on the background information given above

The Act: (15 min)

- The judges will be seated and will request the lawyers to start the proceedings
- There will 15 minutes of time for the courtroom session

The reflection (10 min)

- Reflection on the case, on the proceedings, on the presentation of case, on various stakeholders involved, and the individual take-away lesson/emotion.

3.4 General Case studies

Case study:

Campaigning to save the Whale Shark along the coastline of Gujarat

Case study author: Janki Teli et. al 2014[19]

Wildlife Trust of India's (WTI) whale shark campaign in 2004 called "Vali" – motivated fishers across the Saurashtra-Veraval-Jamnagar coast for protecting Whale Sharks; stop illegal hunting; finning and illegal trade practices. The campaign influenced the Government of Gujarat to adopt the Whale Shark as its mascot and being able to effectively conserve the Whale Sharks along the Gujarat coast.

1. Background information

Gujarat coast is host to the largest fish in the world – The Whale Shark which migrates from Australia and South East Asia. This fish visits the coast of Gujarat to breed. In 2001 Mr. Mike Pandey's film "Shores of Silence bought to light the fact that whale sharks we killed in large numbers along the coast of Gujarat, mainly because to harvest their livers which were used for waterproofing the fishing boats. These whale sharks were not protected since a lot about them was still unknown. WTI along with Mike Pandey subsequently lobbied with the MoEF for the whale shark to be brought under the Schedule I of the Wildlife (Protection) Act of India in 2001—the highest level of protection to a species. In the year 2002 due to the efforts by India and Philippines, the fish was included in Appendix II of the CITES (Convention on International Trade in Endangered Species). A campaign to save the whale shark was thus launched in 2004 to build awareness on its protected status and illegal killings among the local fishing community in order to stop the killings and to urge the general public of Gujarat to protect it. The Save the Whale Shark Campaign was launched as a multi-pronged campaign with support from two corporate houses in Gujarat that had manufacturing units on the coast. The campaign adopted a strategy of soliciting the support of a popular religious leader –Morari Bapu, who equated the fish to an incarnation of a Hindu deity and accorded it a status of a beloved daughter coming home. A life-sized inflatable model, a street play in the local language, theme-based painting competitions in schools, fetes with the whale shark conservation theme, an educational film and public events all worked together to take the campaign from an awareness campaign to a Pride campaign. A series of adoptions of the whale shark as the city mascot by municipal corporations saw the involvement of decision makers and government bodies. Awareness among the fishing community built up to a level where hunters turned protectors and instances were recorded where fishermen cut their fishing nets to release trapped whale sharks.

2. General description of project/initiative/effort

Purpose/objectives :

- Conservation of Whale Shark
- Awareness Campaign regarding conservation of whale shark among coastal as well mainland communities

Implementing entity / partners

- Wildlife Trust of India (WTI), Tata Chemical Limited (TCL), International Fund for Animal Welfare (IFAW) and Gujarat State Forest Department
- Project/initiative duration
- Phase I : 2004 -2008 Phase II 2008 onwards

19 Janki Teli, Sujeet Kumar Dongre, Shriji Kurup, Padma G, Rejini Simpson, Vanitha Kommu, and Reema Banerjee. 2014. A Compendium of Good Practices in Coastal and Marine Biodiversity Conservation in India. CMPA Technical Series No.38. Indo-German Biodiversity Programme, GIZ-India, New Delhi. Pp 97.

3. Process of implementation

The fishing community was involved in the process through a mass awareness campaign with the help of local religious leader preaching regarding Save the Whale Shark. Both the quantitative and qualitative analysis was carried out as baseline survey to get an understanding of the awareness levels of whale shark amongst citizens both urban and coastal. The survey was carried our in three levels Children (8 -14 year of age), Young adults (15-24 years) and Adults (24 -55 years). Amongst the fishermen, Boat / Trawler Owners, Fishermen and Labourers who cut / clean the fish were all surveyed to get an overview of their understanding / awareness of whale shark. This initial survey revealed that citizens of Gujarat State had limited knowledge of fundamental aspects of the whale shark, calling for a vigorous campaign.

The baseline survey revealed that a multi-pronged campaign aimed at generating pride among the inland urban centres regarding whale shark – the world biggest fish, building awareness on the protected status of the shark and ban on hunting among coastal fishing communities would be effective. The pre campaign visits revealed that most of the fishermen along the coast of veraval –mangrol were Kolis and Kharwas who were non-Muslims. Thus it was decided to involve a Hindu religious leader, saint, preacher, and social reformer – Shri Morari Bapu to campaign for the conservation of these species. Shree Morari Bapu with over more than 600 kathas (religious discourses) to his credit on Lord Rama, Krishna and the Scriptures championed the cause of conservation of the Whale Shark in his own inimitable style. This evoked great media interest, and made people sit up take notice when he talked about saving the Whale Shark. Two corporate houses Tata Chemical Limited and Gujarat Heavy Metals Limited funded the campaign. TCL also got completely involved in providing manpower, money and logistical support to conduct the campaign.

Various tools like a series of painting competitions amongst the children on the theme of SAVE the WHALE SHARK, was conducted after disseminating information in schools on the species and need for its protection. A street play in Gujarati, was scripted with the message of Morari Bapu forming the basic storyline of the play. Morari Bapu compared the Whale Share to “Vhali” (beloved) here in the context of beloved daughter who comes to parents place to deliver a child. He said when a daughter comes to her parents place to deliver a child, she is given utmost care. Similarly Whale Shark comes to the coast to give birth to the children, hence she is like the daughter who has come to her parents place for childbirth and utmost care should be given to her and she should be protected and not hunted. This message created a huge impact on the local fishermen and instead of hunting they started protecting this endangered species.

To reach out to the masses and connect them with the whale shark, a 40ft life size inflatable model that looked exactly like a whale shark, in form feature, colour shape and size was ordered to be fabricated. This model was used as backdrop for street play in various locations and it drew huge crowds. This inflatable model turned out to be a huge success in reaching out to the masses and passing on the message of whale shark conservation.

While the campaign by a religious leader, the inflatable whale shark and other community awareness programs succeeded in most places, in some places like Rupen they did not go down well and drew mixed responses. The fisheries department thought that the message conveyed by the street play may not have been in the interest of the fishermen as it would affect their livelihood. The ban on whale shark fisheries had affected the fishing community because whale shark used to fetch them a lot of money. Fishermen to save the whale shark at times had to incur losses upto Rs. 40,000/ because they had to cut the nets completely to save this gigantic fish. At times small boats got damaged due the sheer size of this gigantic fish, but the impending penalty made the fishermen incur losses and fishing community was not conserving the species voluntarily.

The whale shark has been adopted by many cities as the city's mascot, including Porbandar, Diu, Ahmedabad etc. This was just the raise awareness amongst one and all regarding the importance of this endangered species

After the campaign the first fisherman who cut his net to save the whale shark was honored publicly by Shri Morari Bapu in one of his kathas. Tata Chemicals Limited also rewarded some fishermen with cash prizes as compensation for cutting their nets and saving the whale shark.

Altough the fishermen were motivated enough to cut the nets and suffer monetary loss incurred in releasing the trapped fish, the lure of easy cash in poaching could be deterrent in whale shark conservation. Thus a proposal for compensating the fishermen whose livelihood depended on their nets was forwarded by the Forest Department in May 2006 and accepted by the Government in December 2006. A compensation of Rs. 25,000 has been fixed for each fishing net that was damaged while saving the whale shark.

4. Outputs and outcomes

The campaign has produced the following impacts:

- Whale Shark hunting completely stopped along the Gujarat coast.
- The fisher community has accepted the importance of conserving Whale Sharks and how their efforts towards its conservation are valued by society, government and religious leaders. They feel valued and therefore motivated to continue conserving Whale Sharks, event hough this may be a income loss for them.
- Government has become highly sensitized to fishers needs and proactive to adopt novel techniques of campaigning by adopting Whale Shark mascots along the coastal districts and providing full support to the NGOs and environmentalists campaign movement.
- Religious leaders have been able to influence the citizens to draw their attention to Whale Shark conservation and use the positive emotions, faith towards protecting marine biodiversity and wildlife.
- Demonstration about the behaviour and characteristics of the Whale Shark through life-size models helped in drawing mass attention to unique features of marine life and perceiving connection of humans and impact on whale sharks. Such models had huge impact in communicating the conservation message and having a multiplier effect. This was an innovative part of the campaign.
- Media coverage could be drawn towards marine biodiversity conservation and other issues of the fishers, which also helped in creating debates across various levels of the society and therefore generate more public interest and engagement for conservation issues.

5. Discussion

The campaign worked effectively due to initial ground survey and assessment of perception of various stakeholders, particularly fishers towards the whale shark conservation and other marine biodiversity utilization issues. This helped to segregate stakeholders and bring out customized messages that were relevant to the specific coastal area and stakeholder. A key triggering factor for the success was the involvement of the religious leaders to talk about whale shark conservation. This immensely attracted mass attention and channelized their good faith towards conservation efforts. The Government also was a key actor towards the campaigns success, particularly in announcing compensation packages for fishers who lost nets while saving whale sharks and valuing fishers efforts by publicly acknowledging their efforts and rewarding them for it. This increased confidence amongst the fishers and the perceived their efforts for the larger good of the society and whale shark. The positive response of the citizens from the society in valuing fishers as important part of their society and particularly for conservation of whale shark, helped create mass positive ambience and good will for whale shark conservation. This is important to sustain the campaign movement and not depend only on legal provisions to enforce conservation laws. The entire campaign was successful as it could sustain the motivation of

citizens to volunteer actively and debate on whale shark conservation. The public attention and keeping the topic under constant debate in the media was instrumental in strengthening the fishers and government efforts towards the whale shark conservation.

6. Recommendations/conclusions

The support and physical presence of the revered spiritual leader Shri Morari Bapu, proved to be most effective in catalyzing media hits and bringing the stakeholders community state government officials and enforcement agencies under a common umbrella, all working towards the cause of saving the whale shark.Considering the large faith following of several religious leaders in India and along the coast, it may be a good strategy to involve religious leaders in marine biodiversity conservation and campaigns.

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http://www.mangrovesforthefuture.org/grants/small-grant-facilities/india/an-assessment-of-the-past-and-present-distribution-status-of-the-whale-shark-rhincodon-typus-along-the-west-coast-of-india-2/

Photo by: Dr. Deepak Apte

Case study:

Urban Flooding in Mumbai - July 2005[20]

Source: This case study is reproduced here from the document, "Reporting Disaster and Disaster Preparedness – A Training Handbook"

TRAINING METHODS	
Training technique:	Group work
Resources required:	Paper, pen, flip charts, white board, bold marker audio-visual equipment, projector, screen

STEPS

Divide trainees into groups and assign a case study (Sikkim earthquake, Mumbai floods, Jaitapur nuclear power plant) to each group. Introduce briefly each case study and assess how much trainees know about the mentioned bases. Also, briefly touch upon the coverage of disasters in the media. Give trainees the material to read overnight and ask each group to present case study in the next session on the following points:

- Introducing the case study
- Facts and figures
- Losses – human, economic, infrastructure etc
- Relief and rescue
- Coverage of disaster in the media – pre, during and post
- Do's and Don't's Best practices

In the next session, ask each of the groups to present their case study and be a facilitator to further focus group discussion. End of each case study, ensure that the trainees understand Dos and Don'ts of reporting disaster.

20 Harpreet Kaur, N. Firdaus, P. Chatterjee (Authors), D. Asendorpf, J. Gupta, N. Khera, P. Bank (Editors) (2012): Reporting Disaster and Disaster Preparedness – A Training Handbook; 133 pages, published by GIZ. Available on-line from http://www.igep.in/live/hrdpmp/hrdpmaster/igep/content/e48745/e50194/e51519/Media_and_DRR_Training_Handbook_GIZ_2012.pdf

Introduction and Context

Flooding in urban areas can be caused by flash floods, or coastal floods, or river floods, but there is also a specific flood type that is called urban flooding, caused by lack of drainage. As there is little open soil in a city that can be used for water storage nearly all the precipitation needs to be transported to surface water bodies or the sewage system. High intensity rainfall can cause flooding when the city sewage system and draining canals do not have the necessary capacity to drain away the water. Water may even enter the sewage system in one place and then get deposited somewhere else in the city on the streets (http://www.floodsite.net/juniorfloodsite/html/en/student/thingstoknow/hydrology/urbanfloods.html)

Urbanisation is rapidly increasing throughout the world, and India is not an exception (UNESCAP, 2009). There is large scale migration to cities and towns. In India, in 1901 there were 1,827 urban agglomerations with a population of 25.85 million which was 10.84 per cent of the then total population, whereas as per 2001 census there were 3,768 urban agglomerations covering a population of 285.4 million which works out to about 27.8 per cent of the country's population. As per the same census the cities (population of one million and above) account for 37.8 per cent of the total urban population of the country. There are now 35 metropolitan cities with a population of one million or more each as compared to 12 such cities in 1981. These 35 cities account for roughly one-tenth of country's total population. There are six mega cities with a population of five million or more each. This clearly indicates shift from rural areas to urban areas. It is estimated that by year 2050 about 60-70 per cent of population will migrate to cities. With increasing urbanisation, the problems associated with it are more visible. One such challenging problem is urban flooding and urban floods (UNESCAP, 2009 http://www.unescap.org/idd/events/2009_EGM-DRR/India-Apte-Innovative-ways-of-managing-Urban-Floods-comments-final.pdf). Though urban flooding has been experienced over decades in India but sufficient attention was not given to plan specific efforts to deal with it (NDMA, 2010). In the past, any strategy on flood disaster management largely focused on riverine floods affecting large extents of rural areas. Mumbai floods of July 2005 turned out to be an eye-opener. Realising that the causes of urban flooding are different and so also are the strategies to deal with them, NDMA has for the first time decided to address urban flooding as a separate disaster delinking it from floods. NDMA commenced its efforts to formulate the Flood Guidelines in 2006 and released them in 2008. Even while the Flood Guidelines were under preparation, efforts commenced to formulate these Urban Flood Guidelines in August 2007.

(http://ndma.gov.in/ndma/guidelines/Management_Urban_Flooding.pdf)

Floods in Mumbai

The monsoon often wreaks havoc in Mumbai, bringing with it potential for floods. When particularly heavy rainfall coincides with a high tide on the Arabian Sea, the water has nowhere to go and the entire city floods. This happens about one to three times a year. Even a normal monsoon shower can cause mayhem in Mumbai (Win, 2010). This was especially highlighted when Mumbai, a teeming city of more than 15 million people, was brought to a standstill on 26 July 2005. The city experienced the eighth heaviest recorded 24-hour rainfall figure of 994 mm and the rain intermittently continued the next day. 644 mm was received within the 12-hour period between

Lakhs of commuters had a harrowing experience as they either took an inordinate amount of time reaching their homes or, in many cases, had to stay put in their offices due to non-availability of public transport, including the lifeline – suburban railway's western, central and harbour lines. Roads in the city were choca-bloc with thousands of vehicles stuck at various points. Not just the BEST buses, thousands of cars and other vehicles were also submerged in water at various places across the city, prompting the drivers to abandon them on the spot for the night.

PTI
27 July 2005
http://www.expressindia.com/news/fullstory.php?newsid=51561

8 am and 8 pm. Macabre tales of death and deprivation slowly emerged from Mumbai's water world as stranded people attempted dramatic long walks home and families waited to hear from loved ones who left for work (Indian Express, 2005). The rains slackened between 28 and 30 July but picked up in intensity on 31 July. Other places to be severely affected were Raigad, Chiplun, Khed, Ratnagiri and Kalyan in Maharashtra and the state of Goa.

This is so common that many don't even count it as flooding.

"When it's small, you say waterlogging. When it rises to your chest, head, you call it flooding," said Mumbai-based environmentalist Girish Raut.

Hanna Win

23 June 2010

http://www.globalpost.com/dispatch/india/100622/mumbai-rains-floods-monsoon-season-urban-disaster-management

The floods were caused by incessant rains coupled with high tide. Several low-lying areas and large portions of suburban railway tracks in the metropolis were inundated (PTI, 2005). Flooding in the June-September monsoon season is common in Mumbai, which is surrounded on three sides by sea, but July 2005's rains highlighted the vulnerability of the city's infrastructure. The floods that occurred in Mumbai on July 26, 2005 were aggravated by three main factors. The first was the poor and inadequate drainage system of Mumbai, which was not capable of carrying even half the amount of water on the day the disaster took place in the city. The second factor that had an adverse impact on the situation was the rapid growth and development of the northern suburbs which lacked proper control and planning on the part of the city's municipal authorities. Third, the mangroves that existed along the banks of the River Mithi and the Mahim Creek had been destroyed indiscriminately to make way for the construction of new buildings (Blurtit), so there was nowhere to absorb the excess water.

The flood shut down Mumbai, snapped communication lines, closed airports and marooned thousands of people. At least 87 people were killed in two days and another 130 were feared buried in landslides, according to authorities and news reports (breakingnews.ie, 2005). India's then Home Minister Shivraj Patil, on 27 July 2005, told Parliament that "about 5.6 million people in 16,000 villages had been hit by the heavy seasonal rains that had washed away tens of thousands of homes, along with roads, railway tracks and bridges. More than 76,000 farm animals have perished and more than 1.72 million acres of crops had been destroyed by the swirling flood waters."

Meanwhile, a senior relief official, Krishna Vats, said the number of casualties might rise again as bodies buried by landslides are still being recovered.

"We need to restore the water supply and electricity supply and telecommunications and we need to disinfect water — so the hygiene and sanitation are some of the important considerations right now in terms of restoring the situation," he said.

With the heavy rainfall, the sewage system overflew - contaminating water lines. There were concerns that large amounts of debris and animal carcasses might lead to outbreaks of disease. Reports in the media warned of the threat of waterborne diseases, and hospitals and health centres geared up to distribute free medicines to check any outbreak. Losses to the state and private business in the city in July were estimated at more than 20 billion rupees (Reuters, 2010).

The financial ramifications of the Mumbai floods were felt in other parts of India as well. The Surat based diamond and textile industry, which has close trade links with Mumbai, was dealt a severe blow as disruption of transport hit domestic trading and exports consignments withestimated losses of around Rs 300 crore. "Non-fulfilment of commitments and blocked payments on business deals has badly affected the diamond trade, which is heavily dependent on Mumbai," said Pravin Nanavati of Gujarat Hira Bourse (TNN, 2005).

The Government response was seen with the deployment of 5,000 personnel of the armed forces for relief and rescue work in areas like Badalpur, Ambarnath, Ulhasnagar, Kalyan and Dombivili areas in the neighbouring Thane district. These operations were being supervised by Chief Minister Vilasrao Deshmukh (breakingnews.ie, 2005). Mumbai's Police Commissioner A.N. Roy stated, "Never before in Mumbai's history has this happened, our first priority is to rescue people stranded in the floods" (Tribune, 2005). A fire-fighter undertaking rescue operations in northern Mumbai narrated, "It was terrible to pull out little babies from under boulders and mud. The very young and the old just didn't make it" (BBC, 2005).

Prime Minister Manmohan Singh undertook an aerial survey of affected districts like Thane, Raigarh etc. After touring the rain ravaged areas he announced emergency aid totalling Rs 700 crore for the Maharashtra government (AFP, 2005).

In the post-flood scenario the Prime Minister stated, "Mumbai deserves more attention" (Reuters, Calls for better government echo in flood-hit Mumbai, 2005). The Chitale Committee, a fact finding team, was appointed to study the deluge of 2005 and it recommended a contour mapping exercise for the city that could be used to aid the Brihanmumbai Municipal Corporation's (BMC) planned flood modelling system which would help the civic body predict and plan for future flood situations. However, Madhav Chitale, chief of the fact finding committee, lambasted the BMC for failing to learn lessons from the 2005 deluge. Calling the efforts taken by the civic administration "inadequate", Chitale said that safety of the people of Mumbai cannot be guaranteed as the civic body doesn't have basic topographical survey maps (Desai, 2008) .

> …the efforts taken by the civic body to tackle the floods in the city during monsoon are inadequate. "'We're not prepared to cope with floods in future and at an extremely nascent stage," he said.
>
> Shweta Desai, Indian Express
>
> 28 September 2008
> http://www.expressindia.com/latest-news/two-years-on-civic-body-yet-to-implement-chitale-committee-recommendations/366615/

The state government also allocated over Rs 1,600 crore for cleaning up the Mithi river and widening its banks for the purpose of controlling floods. "We have increased the capacity 2-2.5 times. There is siltation that keeps taking place, so we have to keep desilting," said Rahul Asthana, Metropolitan Commissioner, MMRD (Limaye, 2011).

Coverage of urban floods in the media – before/during/after

The July 2005 Mumbai floods were covered widely by both national and regional media. News reports varied from causes of floods, how it was a mix of natural and man-made disaster (unplanned city) to impact of floods on people, business, city etc., how people suffered and struggled to reach their destinations, government's response to the floods and how city responded, (lack of) preparedness for such disasters. In this context, examples of news/media reports are illustrated from the point of view of good reporting or bad reporting.

Angles to look for:

- Overall loss – human life and resources
- Disease outbreak
- Economic dimension
- Education

It is very important to note that urban floods have different aspects and they can be covered from various possible angles. There are certain factors essential to cause a flood – these can be incessant rains, breach in a dam, unplanned city drainage and sanitation system. And once a flood maroons an area, the dangers don't end with the receding of the flood waters. There is loss of life and property; always a danger of epidemic and spread of communicable diseases and the possible blockage of the existing drainage system. As such it is a job of the reporter to look for the various possible angles before, during and after the floods.

Before a flood is caused, a reporter can focus on stories pertaining to unplanned and unorganized cities, the flawed drainage and sanitation system. For example:

City floods due to poor planning

http://vietnamnews.vnagency.com.vn/Social-Isssues/212243/City-floods-due-to-poor-planning.html

Urban experts have rejected suggestions that the worsening of HCM City's chronic flood situation is due to climate change, blaming it instead on rapid urban development and unplanned construction.

… This was due to rapid urban development which caused an encroachment into drainage systems and prevented rainwater from seeping into the soil due to the extensive cementing around the city.

…"The only way to effectively resolve the flooding is by good urban management," former member of the city People's Council, Dang Van Khoa, said.

Unplanned urbanization of Dhaka city: increase of rainfall induced flood vulnerability

http://dspace.bracu.ac.bd/handle/10361/223

…In recent years Dhaka City is facing extensive water logging during the monsoon (May to October) as a common and regular problem of the city like water pollution, traffic congestion, air and noise pollution, solid waste disposal, black smoke etc.

… Management of drainage system of Dhaka City is presently a challenge for the urban authorities because of rapid growth of population and unplanned development activities. Therefore, a close coordination among urban authorities and agencies and collaboration between public and private sectors is needed for effective management and sustainable operation of urban drainage system. It ascertain the inherent causes of such water logging and its effects on the city life from the perception of authorities of different development organizations, experts and people living in different parts of Dhaka City.

Preparing hospitals for disaster management

http://www.thehindu.com/news/cities/Thiruvananthapuram/article2683623.ece

Workshop being held in five disaster-prone cities in country

There was hardly any audience in the hall when the workshop on preparing hospitals for disaster management began at the Peroorkada District Hospital on Friday morning.

But the doctors and paramedical staff who started trickling in about half-an-hour later remained glued to their seats till 1.30 p.m. when the technical session ended.

"Till date, disaster management did not hold any meaning for us. We are now very conscious about the need for an emergency plan and the level of preparedness that we should have as hospital staff," one of the participants said.

"Hospitals are the lifelines where people would be brought in huge numbers when a disaster – floods, earthquakes, major fire, landslips, terrorist attacks or tsunami – strikes. Hospitals should be structurally safe to withstand a disaster such as earthquake, but more importantly, a hospital should be able to function even after a disaster," pointed out Hari Kumar, president, Geo Hazards Society.

The workshop on hospital safety, first of a series of workshops for hospitals being held in five Indian cities, was organised at the behest of the WHO, by the Institute of Land and Disaster Management in collaboration with the Geo Hazards Society, a global partner of WHO.

After a flood, the reporter must watch out for effects like spread of communicable diseases, sanitation and health in the flood-hit areas, or problems faced by the people. For example:

Bangkok floods lead to disease fears

http://www.theaustralian.com.au/news/world/bangkok-floods-lead-to-disease-fears/story-e6frg6so-1226191691063

But health officials warn against a spread of disease, even as the waters recede.

Rekha Hanvesakul, a doctor at BNH Hospital in Bangkok, says Thailand's health system is facing a major test to cope with the floods' aftermath.

"It's definitely a big challenge because of the quantity or mass of water that's coming through. I don't think we've ever had to deal with such large amounts of water," Dr Rekha told AAP.

"If it's one or two days people can manage to deal with this. (But) because the quantity of or mass of water is so huge and a lot of people are living under these conditions for long periods of time disease becomes a real issue," she said.

Doctors are already warning people, especially women, of the dangers of infection from water contaminated by animal urine that can lead to leptospirosis, with symptoms of fever, headache, nausea and vomiting. Other causes of concern include cholera and gastrointestinal diseases, such as typhoid. BNH also warns of poisonous snakes, scorpions and centipedes in the water.

"Of course things like typhoid, which again comes from salmonella bacteria, unclean food, water, unhygienic methods, not washing your hands after going to the bathroom or defecating in flood waters just because there are no toilets," she said.

Will Thailand's Floods Bring Disease?

http://thaifinancialpost.com/2011/11/16/will-thailands-floods-bring-disease/

Thai health authorities are on alert for outbreaks of disease as massive floods across the central plains show signs of receding. Medical specialists are especially concerned for communities inundated over several weeks, raising concerns of outbreaks of dengue fever, cholera and typhoid.

Mopping up in Mumbai

http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)67196-6/fulltext

…Devastating floods and a death toll exceeding 1000 have made sanitation–and Mumbai's decrepit drainage system–a political issue in India. As waterborne diseases continue to claim lives a month after the deluge,

…A month after unprecedented rains lashed the teeming metropolis of Mumbai, killing more than 1000 and paralysing India's commercial and entertainment capital, policy-makers are, at long last, making the link between drains and disaster.

Big rain brings urban flooding

http://www.nation.com.pk/pakistan-news-newspaper-daily-english-online/Regional/Lahore/24-Jul-2011/Big-rain-brings-urban-flooding

The City received another heavy downpour on Saturday, putting the routine life to a standstill by causing urban flooding. The experts have forecast more rains during the next couple of days.

Short bursts of heavy downpour at noon submerged roads and streets in many localities into knee-deep water. It took the WASA employees hours to drain out the rainwater. Massive traffic jams were witnessed on a number of important arteries till the evening.

The Lahorites witnessed its worst gridlock – from Shah Alam Market to Chungi Amir Sidhu – and many smaller traffic jams on several of its other roads on Saturday as heavy down-pours lashed the City yet again. The commuters on the main road into the City waited for hours for the traffic mess to clear.

…The premier sanitation agency WASA failed to clear inundated rainwater from roads and streets even hours after stoppage of rains. The situation was worst at Liberty Market, Centre Point, Firdous Market, Shadman, Qartaba Chowk,

Bangkok after the floods

http://www.bangkokpost.com/news/local/263713/bangkok-after-the-floods

It is strange but true that despite repeated warnings, there are still residents of Bangkok's inner city who remain in denial about the watery woes threatening to engulf them. They say they have stayed dry before, so see no cause for concern. By contrast, others have emptied the shelves of supermarkets in panic-buying sprees and then retreated to high ground or fled the capital. A third group has behaved more rationally by taking the necessary precautions and adopting a commendably far sighted approach. In their view, every disaster brings an opportunity and, on this occasion, it is to metaphorically wash away the sins, clutter and mistakes of the past and make all 1,570 square kilometres of Bangkok a better place to live in future.

Journalists can also follow-up to check whether governments have learned any lessons after a flood and what their plans to prevent such floods in future are.

Lessons to be learned from SE Asia floods

"The UN secretary general, Ban Ki-moon, visiting Thailand, said he had, "emphasized the importance of learning lessons from this mega flooding". Ban was en route to the Durban climate change conference where he is calling for a $100bn fund to help developing countries mitigate the impact of global warming.

While individual events such as the flooding in south-east Asia can't be causally linked to climate change, they do demonstrate the impact that an increased frequency of weather extremes will have on countries in the region. With sea level rises also likely to present a serious risk of urban flooding around the world, Bangkok's experience could serve as a template for future disaster management.

Unicef's Thomas said so far he'd been impressed by the government's response. "Given the amount of water, the authorities have done a pretty good job," he said. However, the real test will begin when the flood waters start to recede and those displaced have to return home"

Did Mumbai learn nothing from 2005?

http://infochangeindia.org/Urban-India/Cityscapes/Did-Mumbai-learn-nothing-from-2005.html

Although the realisation that Mumbai's mangroves have to be preserved has sunk in after the disastrous floods of 2005, nothing concrete has been done about it. Now there are plans to build a new airport that, environmentalists say, will result in an estimated 170 hectares of mangroves being destroyed. And the diversion of two rivers.

When the rains set in, people in cities like Mumbai and Kolkata worry every day about the prospect of wading through flooded streets. They ask themselves whether they will get through another monsoon without experiencing the kind of disaster Mumbai faced in 2005. Have any lessons been learned?

A crucial message that came through a disaster like the one in 2005 – forced by nature but compounded by human folly – was the importance of allowing nature to play the role it always has in mediating between large quantities of water and the ability of the soil to absorb it. Urbanisation inevitably forces the paving over of open spaces and dirt stretches. As a result, an important method of absorption of rainwater and its runoff is destroyed.

The other natural 'drain' that cities, particularly those located near the sea, have are mangroves – unique wetlands that act as a check for excess water from rising seas encroaching landwards, while draining out excess rainwater even during heavy showers. Yet urbanisation is increasingly killing this valuable resource.

Its value, of course, goes beyond its function as a natural drain. Mangroves are repositories of important biodiversity, both flora and fauna. They attract birds and insects, as well as aquatic life. They spawn vegetation that is unique and sturdy as it is able to withstand strong tides and denudation. They survive in a unique combination of saline and fresh water.

Although the realisation has sunk in, particularly in the case of Mumbai, following the 2005 flooding, that mangroves must be protected, the reality is that nothing is being done about it. 'Protection' is an aim, a desire that is not backed by concrete plans, by vigilance that would ensure that the wetlands survive urbanisation's onslaught.

To remain on lookout for such stories, a reporter needs to rely on different sources of information. For example, after the floods recede, the reporter can watch out for the people admitted in the hospital and check from the doctors or hospital administration whether there has been any sudden increase in inflow of a particular type of patient.

As far as the floods are concerned or for that matter any other disaster, one of the major challenges for a reporter is to get the facts right. Though the official sources are seen as reliable but in case of floods, it is possible that the government officials may try a cover-up or downplay the gravity of the situation. In such circumstances, a journalist has to make extra effort to be accurate while reporting about the floods. He can rely on several sources both official and unofficial. These include the government officials, hospital administration or doctors, the credible NGOs that have a wide network of volunteers and professionals, police and the victims. But since there is always a possibility of conflicting figures from different sources, it is essential for a reporter to give the information provided by different sources but with proper attribution.

Example 1:
Facts are sacred, and so is balance

Record rains in Mumbai, death toll is 8
AP WEDNESDAY, JULY 27, 2005

The reporter has started the news report with a clear beginning and established the context

"The strongest rain ever recorded in India shut down the financial hub Mumbai, snapped communication lines, closed airports and marooned thousands of people, officials said on Wednesday. At least 87 people were killed in two days of crippling rains and another 130 were feared buried in landslides, according to authorities and news reports."

The reporter has relied on different sources of information to ensure accuracy and explains the extent of damage caused and relief and response measures taken up by the government and state authorities. The director of the meteorological department was interviewed to bring in expert's comments, while the Home Minister (official source) was interviewed to comprehend the damage caused and response measures taken up by the government. General public was interviewed to explain the suffering of people, while state level officers were quoted to illustrate the measures taken up by the local administration for relief and rescue operations.

India's Home Minister Shivraj Patil… said about 5.6 million people in 16,000 villages had been hit by the heavy seasonal rains that had washed away tens of thousands of homes, along with roads, railway tracks and bridges. More than 76,000 farm animals have perished and over 1.72 million acres of crops had been destroyed by the swirling flood waters, Patil said.

"We were stuck in a bus all through the night with nothing to eat or drink. It was impossible to get out because there was water all around," said government employee Yamini Patil

Example II:
Using personal story to tell about bigger events

Wading all night through Mumbai
http://news.bbc.co.uk/2/hi/south_asia/4724245.stm

The reporter here has used the personal account of Anjali Krishnan, a Mumbai based advertising professional, describing her night-long trek home through neck-deep water in the flooded city. Though the news report primarily focused on how floods impacted Anjali Krishnan and her efforts to reach home amidst difficult circumstances, it is also the story of millions of people living in the city. Some excerpts:

…I had driven out of home for a business meeting in Mumbai on an overcast rainy afternoon on Tuesday… I was on the way to Bandra when I joined a queue of cars, and instantly realised that the rain had thrown the traffic out of gear… No big deal, I thought. It happens every monsoon. …It was half past four in the afternoon. I had already spent an hour and a half trying to negotiate through the traffic. For the next 10 hours, till two in the morning on Wednesday, I was stranded in my car.

… As the hours passed, I realised that I had gotten myself in a big mess – Mumbai had been inundated, everything had come to a halt, there were power outages

…The rain was slapping ferociously on the wind screen, the sky was inky black, there was darkness all around, and the city's cheery FM stations spewed romantic Bollywood rain songs on the car radio. They had seen us in the car and were offering some snacks….We were famished and took up the offer. They took us to half constructed building nearby and fed us….There was a school bus packed with children nearby – the men had dropped some snacks for the trapped students. ..Around three in the morning, we decided to finally begin our long march home through the swirling, near neck-deep water. …It was still pouring, and we couldn't hold our umbrellas in the gale. There were broken bottles floating all around. I saw two Mercedes Benz cars and a Toyota Lexus floating in the water…We crossed dark homes, and shops and police stations. We met a lot of friendly firemen trying to keep order, but not a single policeman on the way –

…Soon, it became a long, happy, wet trek as can only happen in Mumbai….Our fellow travellers, boys and girls, men and women, young and old, chanted hymns, sang songs, cracked jokes. ..Others cracked the night's best silly jokes – whenever they would come across a car floating in the middle of the road, they would shout: "No parking! No parking please! This is a traffic offence!" …"Don't feel ashamed, madam. Hold my hand. Bindaas pakro (Hold me coolly)," said a young man in the queue lending a helping hand to a girl.

Example III: Statistical detail with clarity

Mumbai begins to count losses from rains
http://www.expressindia.com/news/fullstory.php?newsid=51995

This news report explains the impact of floods on various aspects including animals, human beings, business etc. A lot of statistical detail has been incorporated in this news report, but the reporter has managed to stay away from generalizations and has provided accurate information (at least according to the official sources). Some excerpts:

…Heavy rains and floods in Maharashtra last week have caused losses of at least 150 billion rupees ($3.5 billion), early government estimates say.

Accuracy is the key here. The reporter has quoted official sources of information but also use the word 'early' leaving scope of further additions/deletions based on accurate information.

Small businesses have lost an estimated 10 billion rupees, an industry body said. Pfizer Ltd, the Indian unit of the world's largest drug maker, estimated its flood losses at 1 billion rupees.

Note the use of terms such as 'estimated' and the substantiating example from Pfizer.

At least 942 people drowned, died in landslides or were electrocuted in floodwater in Maharashtra, including 429 in Mumbai. Union Home Minister Shivraj Patil said on Tuesday some 100 people were missing. About 300 cases of cholera, gastroenteritis and dysentery have been reported in the state. Hundreds of medical teams have been deployed across Maharashtra to treat the injured, distribute chlorine tablets for contaminated water and cremate the dead. Patil said 1,200 buffalos and 15,000 sheep and goats died in the floods in Mumbai.

The statistics used are clear, with official figures in exact numbers. That makes the report clear.

Example IV: A good example of a follow-up story

Disease fears after India monsoon
http://news.bbc.co.uk/2/hi/south_asia/4726645.stm

This is a perfect example of kind of follow-up stories that can be done immediately after a disaster. The reporter has explained the impact of floods and how people suffered on the first 2-3 days, and efforts put in by the government agencies to tackle the situation. Also, the news report presents problems that could follow after the disaster has hit. It therefore, becomes a warning to the general public to take care so that they don't get caught by the diseases due to contaminated water.

…Authorities in India are racing against time to prevent epidemics as the death toll from a monsoon reaches 800 in Mumbai (Bombay) and surrounding areas. There are concerns that large amounts of debris and animal carcasses might lead to outbreaks of disease.

Example V: Going beyond the obvious

Mumbai: Everybody loves a good flood
http://www.expressindia.com/ews/fullstory.php?newsid=52222

This news report is a creative critique of the response of politicians in the field of relief work after the Mumbai floods. It analyses how actual relief work on the ground gets sidelined by politicians. The politics of flood work are effectively revealed. The headline is a reference to the famous book by P. Sainath Everybody Loves a Good Drought which exposes the politics of drought relief. It is an innovatively used headline. An illustrative excerpt from the report:

...Having sniffed a never-again opportunity, politicians of every hue have jumped into Torrential Tuesday's relief operations. And what better way to begin than to claim credit for free wheat, rice and kerosene sent by the state government. In Kherwadi's shanty colonies in Bandra (East), those picking up their apportioned relief also had a receipt thrust into their hands, with their name and address scrawled in. "From Govt of Maharashtra, arranged by Prof J C Chandurkar (MLA)," it said.

US NRIs collect funds for Mumbai flood victims
http://www.hindustantimes.com/US-NRIs-collect-funds-for-Mumbai-flood-victims/Article1-34883.aspx

This is again an example of a good follow up story after a disaster However, this story could have been written in a better way to show how Maharashtrians living in the US are concerned about the situation back home. And being thousands of kilometres away, how they have joined hands to help their families and communities in Mumbai. The reporter could have taken a case study that would have made this report far more interesting.

Example VI: Disaster preparedness

Now, a mock drill on flood preparedness
http://www.indianexpress.com/news/now-a-mock-drill-on-flood-preparedness/580105/

This is a good example of both – a report on disaster preparedness and a follow-up report. Even though five years have passed since 2005 Mumbai floods, the reporter has taken that story as a base to explain the mock drill that the government is planning in Mumbai.

Learning Outcome:

At the end of each case study, the participants,

- will have an in-depth understanding of the type of media coverage that has taken place in some disasters in India
- will be able to appreciate the good practices on role of media in pre, during and post- disaster coverage.

3.5 Documents and handouts for the coastal expedition

Handout 8: A sample liability release form for the participants of coastal expeditions

Participant agreement

Liability Release, Assumption of Risk, and Indemnity Agreement

I understand that the training course [Special Certificate Course on Coastal and Marine Biodiversity and Protected Area Management] in which I will participate from January 12 2015 to February 6 2015, involves inherent and other risks. Those risks include (but are not limited to) those associated with being in the outdoors and under pool and open sea conditions, such as slipping or falling on the ground or into the water, drowning, encounters with wildlife or harmful plants, and water-borne illness. I understand these and other risks not listed above can, in extreme and unlikely circumstances, cause or lead to death, injury, illness, property damage, or disability. I agree to assume all the risks of my activities whether inherent or not and whether mentioned above or not.

In exchange for being able to participate in this programme, I, on behalf of myself, my child, my heirs, executors, administrators, sponsors, successors, and/or assigns, agree and hereby do forever release, waive, and discharge *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) GmbH), which includes its employees, cooperating institutions, and other persons acting under their direction and control (collectively "GIZ") from and agree to defend and indemnify (meaning to pay or reimburse these parties for money they are required to pay, including attorney's fees and costs) and hold each of them harmless against, and Wildlife Institute of India(WII), Dehradun any and all liabilities they may jointly or severally incur in respect to any claim, suit, or cause of action, including expenses of litigation, brought by or on behalf of me, my child, a family member, personal representative, estate, or any other person, on account of any personal injury, death, loss of health, financial loss or damage to property, including any such injury, loss or damage resulting from the negligence of GIZ and WII, directly or indirectly sustained by me, my child, a family member, a co-participant, or any other person as a result of my participation in the Special Certificate Course or the use of equipment or facilities. This release is intended to be enforced to the fullest extent allowed by law and includes any type of suit. However, I do not release GIZ and WII from liability caused by the gross negligence or wanton or reckless misconduct.

I agree that GIZ and WII have the unrestricted right to use any photos or video taken of me or that I provide to GIZ and WII for marketing materials or other purposes without compensation to or prior authorization from me.

I hereby confirm that I have read and understood the contents of this form.

Participant name _____

Date of birth (ie 30.06.1965) _____

Mobile phone number _____

Name and phone number of emergency contact _____

_____

Signature of participant _____

Date (dd/mm/yyyy) _____

Acronyms

ABNJ	Areas beyond national jurisdiction
ASC	Aquaculture Stewardship Council
BMT	Bohol Marine Triangle
CBD	Convention on Biological Diversity
CBOs	Community-based organizations
CBRN	Chemical, biological, radiological and nuclear
CCAMLR	Commission on the Conservation of Antarctic Marine Living Resources
CCMNC	Cabinet Committee on Management of Natural Calamities
CCRF	Code of Conduct for Responsible Fisheries
CCS	Cabinet Committee on Security
CDV	Civil Defence Volunteer
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMFRI	Central Marine Fisheries Research Institute
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COP	Conference of the Parties
CRF	Calamity Relief Fund
CRZ	Coastal Regulation Zone
CSO	Central Statistical Organization
CSR	Corporate social responsibility
CWC	Central Water Commission
CWDS	Cyclone Warning Dissemination System
CWS	Cyclone Warning Centres
CZMA	Coastal Zone Management Authorities
DDMA	District Disaster Management Authority
DEOC	District Emergency Operation Centre
DM	Disaster management
DMS	Department of Merchant Shipping
DOD	Department of Ocean Development
DRDO	Defence Research and Development Organization
DRS	Disaster reduction strategies
DRR	Disaster risk reduction
DTEPA	Dahanu Taluka Environment Protection Authority
EEZ	Exclusive Economic Zone
EIA	Environmental impact assessment
EMP	Environment Management Plan
ENVIS	Environmental Information System
EoH	Enhancing Our Heritage project
EPA	Environment Protection Act
ERSST	Extended reconstructed sea surface temperature

ESA	Ecologically sensitive area
ESF	Emergency Support Function
FAO	Food and Agriculture Organization
FRA	Forest Rights Act
FSI	Forest Survey of India
GCBA	Generational cost benefit analysis
GEC	Gujarat Ecology Commission
GEF	Global Environment Facility
GIS	Geographic Information System
GISP	Global Invasive Species Programme
GoI	Government of India
GOM	Gulf of Mannar
GOMNP	Gulf of Mannar National Park
GPS	Global Positioning System
GSI	Geological Survey of India
HFL	Highest flood level
HLC	High-level committee
HPC	High-powered committee
IBA	Important Bird Area
ICCAs	Indigenous peoples and community-conserved territories and areas
ICMAM	Integrated coastal and marine area management
ICMBA	Important Coastal and Marine Biodiversity Areas
ICRW	International Convention for the Regulation of Whaling
ICS	Incident Command System
ICT	Incident Command Team
ICZM	Integrated coastal zone management
IDKN	India Disaster Knowledge Network
IDRN	India Disaster Resource Network
IMC	Inter-ministerial Committee
IMCAM	Integrated marine and coastal area management
IMD	India Meterological Department
IMG	Inter-ministerial Group
INCOIS	Indian National Centre for Ocean Information Services
IOC	Integrated Operations Centre
IPCC	Intergovernmental Panel on Climate Change
IT	Information technology
ITK	Indigenous technical knowledge
ITPGR	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature
LMMA	Locally managed marine area
MCPAs	Marine and coastal protected areas
MEA	Millennium Ecosystem Assessment
MFRA	Marine Fishing Regulation Act

MHA	Ministry of Home Affairs
MMS	Malvan Marine Sanctuary
MoES	Ministry of Earth Sciences
MPA	Marine protected area
MTHL	Mumbai Trans Harbour Link
NBAP	National Biodiversity Action Plan
NCC	National Cadet Corps
NCCF	National Calamity Contingency Fund
NCMC	National Crisis Management Committee
NCSCM	National Centre for Sustainable Coastal Management
NDEM	National Database for Emergency Management
NDMA	National Disaster Management Authority
NDMF	National Disaster Mitigation Fund
NDRF	National Disaster Response Force
NEC	National Executive Committee
NEOC	National Emergency Operation Centre
NEP	National Environment Policy
NGOs	Non-governmental organizations
NIDM	National Institute of Disaster Management
NITs	National Institutes of Technology
NOAA	National Oceanic and Atmospheric Administration
NSDI	National Spatial Data Infrastructure
NSS	National Service Scheme
NYKS	Nehru Yuva Kendra Sangathan
PA	Protected area
PPP	Public-private partnership
PRIs	Panchayati Raj Institutions
QRT	Quick Response Team
R&D	Research and development
RAPPAM	Rapid Assessment and Prioritization of Protected Area Management
REDD	Reduced Emissions from Deforestation and Forest Degradation
RRC	Regional Response Centre
SAC	Space Applications Centre
SAR	Search and rescue
SASE	Snow and Avalanche Study Establishment
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SCME	Sindhudurg Coastal and Marine Ecosystem
SDGs	Sustainable Development Goals
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SEA	Strategic Environmental Assessment
SEC	State Executive Committee
SEOC	State Emergency Operation Centre

SEZA	Special Economic Zones Act
SLEIAA	State Level Environmental Impact Assessment Authority
SOPs	Standard operating procedures
SSC	Species Survival Commission
TEV	Total Economic Value
TILCEPA	Theme on Indigenous and Local Communities, Equity and Protected Areas (of IUCN)
TNC	The Nature Conservancy
ULBs	Urban local bodies
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction
UT	Union territory
WCMC	World Conservation Monitoring Centre
WCPA	World Commission on Protected Areas (of IUCN)
WDPA	World Database on Protected Areas
WHC	World Heritage Convention
WII	Wildlife Institute of India
WMO	World Meteorological Organization
WWF	Worldwide Fund for Nature

Notes, observations, thoughts