



Ministry of Environment,
Climate Change
and Technology



ENDhERI



Workshop Report

Marine Ecosystems and their services: Training of Trainers



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In collaboration with Maldives National University and Rekam Nusantara Foundation (Indonesia)

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1. Executive summary:

This report summarizes the outcomes and key insights of the "Workshop on Marine Ecosystems and their services: training of trainers". The workshop was conducted on 24 and 26 August 2023, to cater for over 190 high school teachers from 187 schools from across the Maldives. The content remained unchanged between the two days.

The report provides an overview of the objectives, topics covered and supporting practical activities. The workshop aimed to enhance the participants' understanding of the fundamental concepts of natural capital and ecosystem services, enabling them to effectively integrate these concepts into their teaching. The report provides further details of attendance by gender and level taught.

From participant feedback:

- Ninety-six percent of respondents rated the workshop "good" to "excellent".
- Confidence in understanding marine ecosystems and conservation increased by 50% due to the workshop (from slightly / moderately confident to very confident).
- Approximately 25% of participants had prior experience with natural capital and ecosystem service topics. Confidence in natural capital and ecosystem service topics increased by 41% due to the workshop.

Future workshops could consider multiple days and more firsthand activities.

2. Workshop Objectives:

The primary objectives of the workshop were as follows:

1. Extending an understanding of marine ecosystems: To provide further information on coral reefs and food web dynamics.
2. Familiarization with the concept of Natural Capital: To introduce the concept of natural capital and its significance measuring and managing marine resources and ecosystems.
3. Familiarization with the concepts of Ecosystem Services: To provide participants with a comprehensive understanding of ecosystem services, their types, and the critical role they play in sustaining economic activities and human well-being.
4. Identify threats to ecosystems and their services: To provide an overview of the impacts to the three key ecosystems and their potential impact to ecosystem services.
5. Alignment and integration into the national curriculum: To equip high school teachers with practical tools and resources for integrating ecosystem services and natural capital concepts into their teaching, furthering literacy in these concepts among students.

3. Workshop Structure:

The workshop was structured into four main phases, and an additional phase for extending the teaching beyond the workshop. Interspersed between the sessions were four activities, to provide teachers with ideas.

1. Session 1: Introduction to Marine Ecosystems

The initial session focused on establishing a theoretical foundation in marine ecosystems.

Participants engaged in sessions covering definitions of mangroves, coral reefs and seagrass, and their importance to the Maldives.

2. Session 2: Measuring Marine Ecosystems

The session focused on defining ecosystem health, based on abiotic (non-living) and biotic (living) factors. The workshop provided an overview of the tools needed to measure these factors.

3. Session 3: Marine Ecosystem Services

The third session focused on defining the concepts of natural capital and ecosystem services, examples of provisioning, regulating, supporting, and cultural services, and their relevance to society and the economy. Discussions revolved around identifying the services, the benefits derived from ecosystems and the stakeholders that use these ecosystem services.

3. Session 4: Threats to Marine Ecosystems

The fourth session day focused on the key stressors and impacts to the three study ecosystems. Participants explored the threats in the Maldives and were provided with teaching strategies and activity ideas to explore how to ensure sustainable development.

3. Session 5: Conservation and Sustainable Management of Marine Ecosystems

The final session provided take-home materials focused on the conservation of ecosystems using Marine Protected Areas. Further materials (links, images) for students were provided for individual and collective action for sustainability.

3.1 Extra media materials:

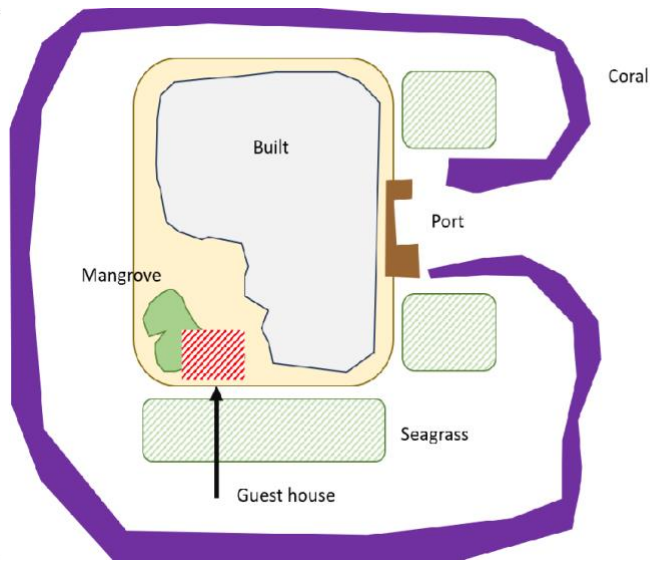
The training included videos and animations to increase the flow of the workshop and reinforce key concepts. The videos and animations were provided in Dhivehi, including a:

- Video by Ministry of Environment, Climate Change and Technology on Natural Capital Accounting
- Video describing mangrove structure,
- Video describing importance of mangroves to the Maldives.

3.2 Practical activities:

The workshop contained four activities, with additional information on adapting them as lesson plans for their students. The activities were conducted per table and provided an opportunity for teachers to engage deeper with the content, with fellow educators.

1. Identifying benefits from ecosystems: Participants were engaged in interactive case study analyses of mangroves, coral reef, and seagrass. The teachers were asked to identify the importance of these ecosystems to the Maldives and provide real-world examples. This allowed teachers to draw on their own experiences, interacting with these ecosystems.
2. Measuring the health of marine ecosystems: Participants were provided with a range of visual materials for the three ecosystems, each representing a range of biotic and abiotic factors that have changed (e.g., depth, biodiversity, eutrophication).
3. Identifying marine ecosystem services: Using knowledge from the previous activities, the teachers were prompted to produce examples linking natural capital to ecosystem services, and further identifying who benefits from these services using real-world scenarios. This fostered a deeper understanding of how these concepts could be found in various contexts. Teachers were also challenged to identify how different sectors may clash in the use of different ecosystem services (e.g., tourism vs. fishing).
3. Role play - sustainable island development: The final activity challenged teachers to put the contents from the workshop into practice. The participants were challenged with a scenario common to the Maldives, where a hypothetical island had several stakeholders that proposed reclamation, mangrove clearing for tourism and other development (Map 1). Teachers were challenged with identifying the ecosystem services that were impacted (both positive and negative) and generate a plan for the hypothetical island.



1. What ecosystem services are changed?
2. What would you do?

Map 1. A scenario for development on a hypothetical island.



Photo 1. Attendance for the first workshop (24 August 2023).

4. Participant outcomes:

There were 191 participants that provided responses to the workshop survey, from 187 unique schools from across the Maldives.

4.1 Gender

Of the participants that attended, 69% were female (132) and 30% were male (57).

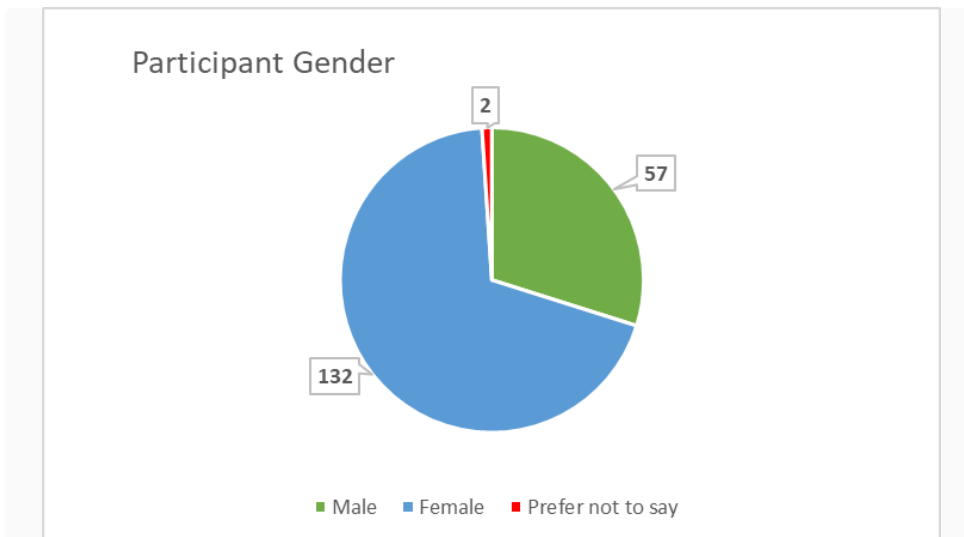


Figure 1. Gender breakdown of workshop participation.

4.2 Key Stages

The workshop provided training to teachers from Key Stage 1 to 4. Most teachers were teaching Key Stage 2 (46%). Of the respondents, there were three leading teachers present.

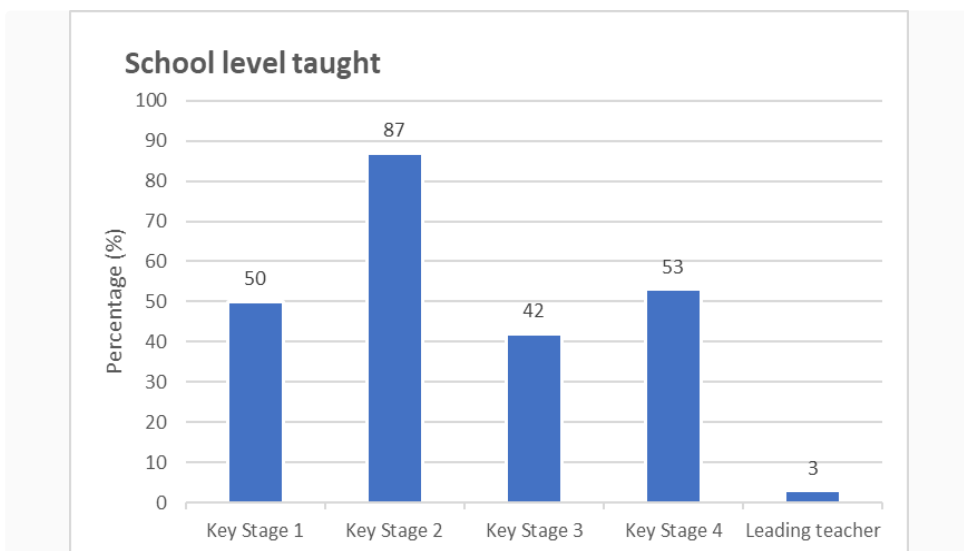


Figure 2. School level taught by participants.

4.2 Improvement in understanding

There was a large increase in the confidence of teachers compared to before and after the training.

- For natural capital, the number of teachers that were very and extremely confident increased by 41% (80 teachers),
- For marine ecosystems, the number of teachers that were very and extremely confident increased by 51% (80 teachers),
- For human impacts, the initial confidence in the subject was already high, with ninety-six teachers confident in the topic. The number of teachers that were very and extremely confident still increased by 31% (59 teachers),
- For ecosystem services, the number of teachers that were very and extremely confident increased by 46% (87 teachers),
- For conservation, the number of teachers that were very and extremely confident increased by 50% (95 teachers),

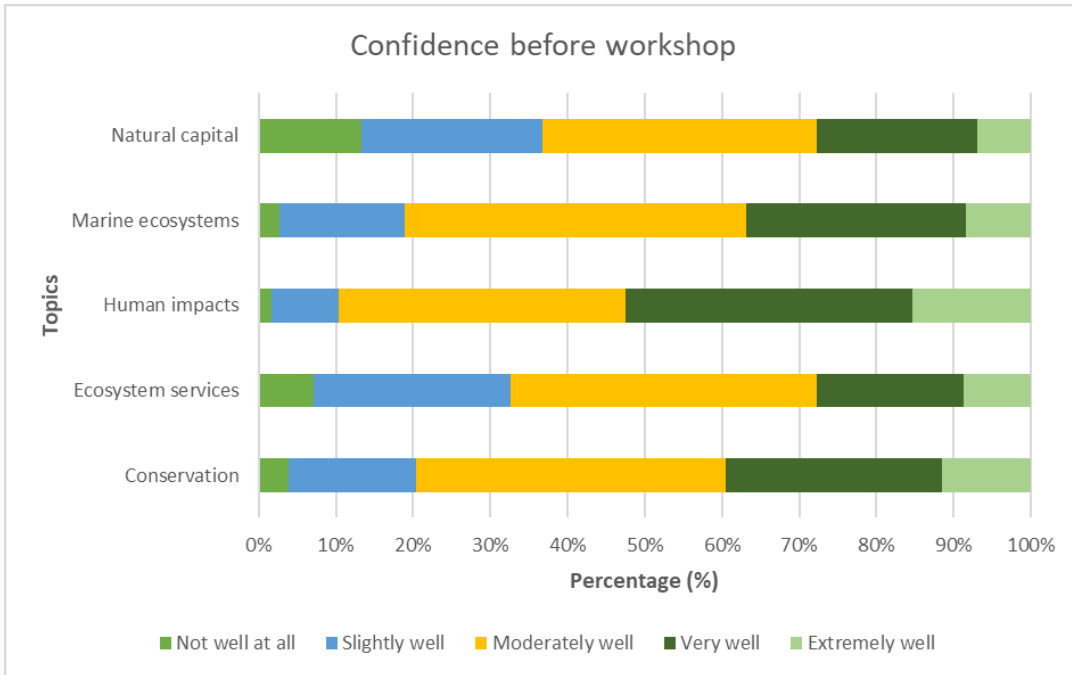


Figure 3. Confidence before the workshop.

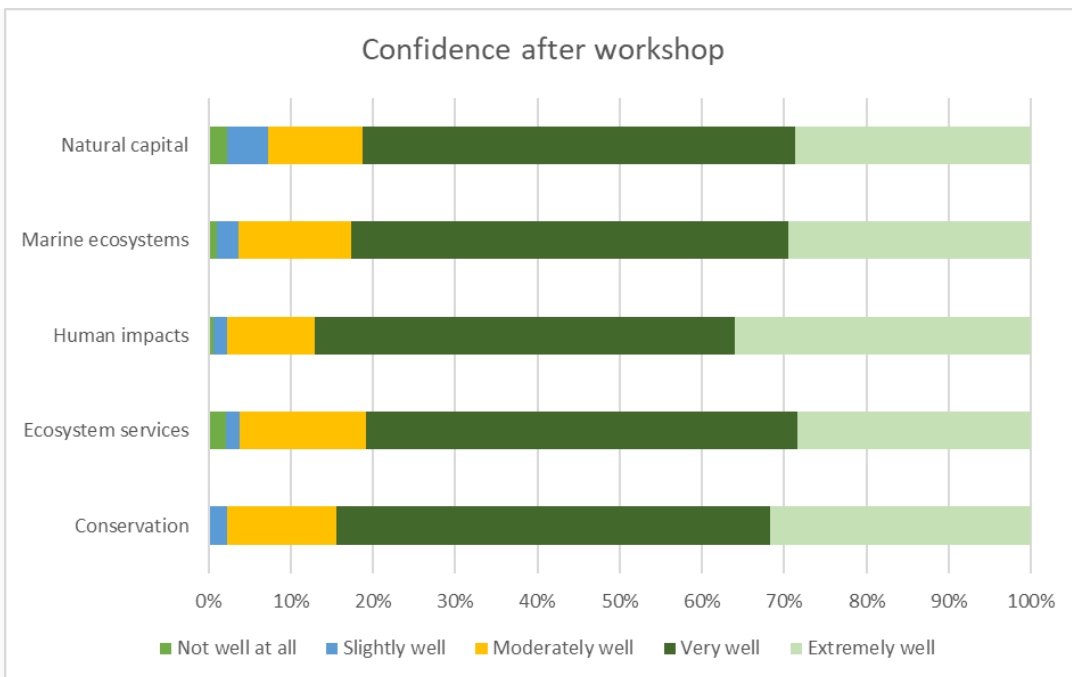


Figure 4. Confidence after the workshop.

5. Participant feedback

From the survey, over 96% of the participants found the workshop useful (Rating of four or higher). On average, the participants rated the workshop components highly, with an average rating higher than 4 (of 5) for all topics.

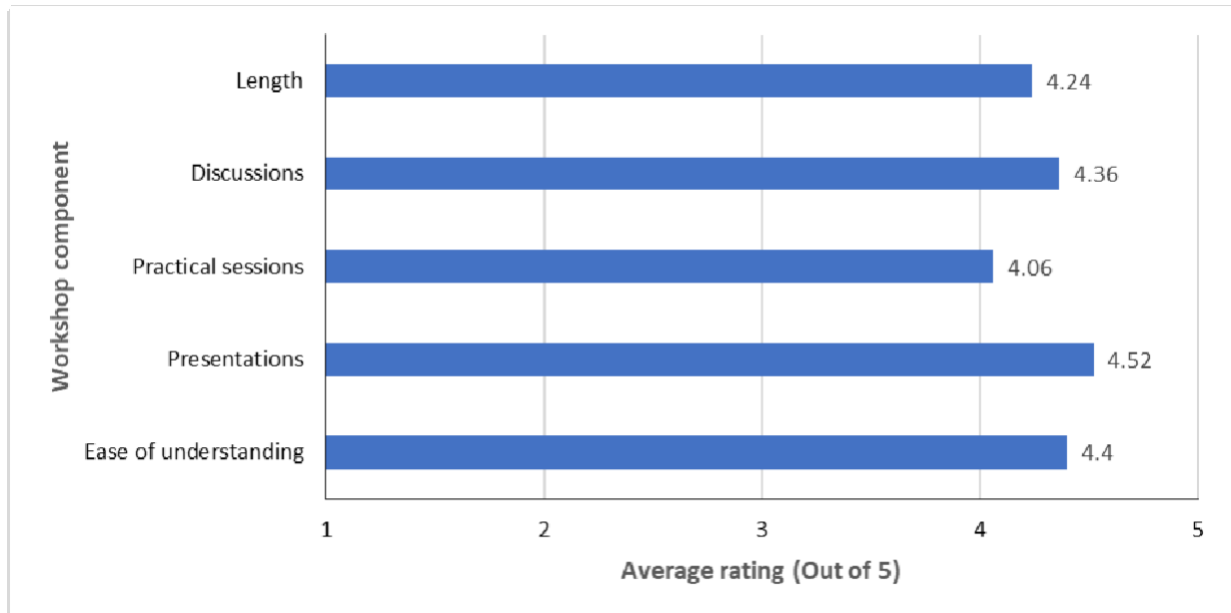


Figure 5. Participant feedback responses after the workshop.

The comments from the survey could be categorized into the following:

1. More interactive content:
 - o for younger students (14 responses)
 - o icebreaker games (8 responses)
 - o more videos (4 responses),
 - o more activities (16 responses),
 - o more movement / less sitting (12 responses).
2. Increase duration of the workshop (12 responses)

6. Conclusion:

The "Ecosystem Services and Natural Capital" workshop proved to be a resounding success in enhancing the understanding and instructional capacity of over two hundred high school teachers. By equipping educators with the knowledge and tools to integrate these critical concepts into their teaching, the workshop has contributed to fostering environmental awareness and sustainability among the younger generation. The positive feedback received underscores the significance of continuing such initiatives to create a more environmentally conscious society.

Attachments:

- [Link to workshop materials](#)



Workshop Agenda
Workshop Agenda · Table



Participant Feedback survey

Annex 1: Workshop Agenda

Time	Item	Speaker
9:00 am	Registration and coffee	-
9:30 am	Welcome	Mr. Zahir - Director General, MECCT
10:00 am	Overview of day / activity	UNSW
10:15 am	Session 1: Introduction to Marine Ecosystems + starting activity	MNU, Rekam
10:45 am	Session 2: Measuring Marine Ecosystems	Rekam, UNSW
11:15 am	Coffee Break	
11:30 am	Practical activity 1 - Describing different ecosystems by type and their health	UNSW
12:00pm	Lunch Break	-
1:00 pm	Session 3: Marine Ecosystem Services	UNSW
1:30pm	Practical activity 2 - Exploration of ecosystem services per table. Sharing per group.	UNSW
2:30pm	Session 4: Threats to Marine Ecosystems and Ecosystem Services	UNSW
3:00pm	Coffee Break	
3:30pm	Practical activity 3 - Ecosystem services lesson sheets for students. Ideas for engagement.	UNSW, Rekam, MNU
4:00pm	Final discussion and workshop evaluation survey (certificates) / conclusion	UNSW, MNU
Extra	Session 5: Conservation and Sustainable Management of Marine Ecosystems (Take home content)	UNSW

Annex 2: Participant Feedback survey



Question Tour Block 1

Thank you.

Thank you for attending the **Workshop on Marine Ecosystems and their services: training of trainers**. Your feedback is very valuable to us.

At the end of the **anonymous** survey you will be prompted to provide your details (name and email address) so that we may send a **Certificate of Participation**. Responses will be separate to your details.

(Estimated time: 3 mins)

Q1. What gender do you identify as?

- Male
- Female
- Prefer not to say

Q2. What year level(s) of school do you teach?

- Key Stage 2
- Key Stage 3
- Key Stage 4
- Other

Q3. Before the workshop, how well did you know the following concepts?

	Not well at all	Slightly well	Moderately well	Very well	Extremely well
Marine ecosystems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural capital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ecosystem services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human threats to ecosystems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4. After the workshop, how well did you know the following concepts?

	Not well at all	Slightly well	Moderately well	Very well	Extremely well
Marine ecosystems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural capital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not well at all	Slightly well	Moderately well	Very well	Extremely well
Ecosystem services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human threats to ecosystems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5. Please rate the following components of the workshop:

Presentations	<input type="text"/>
Practical sessions	<input type="text"/>
Discussions	<input type="text"/>
Length	<input type="text"/>
Ease of understanding	<input type="text"/>

Q6. How could we have improved the workshop?

Certificate

Certificate. For us to send a participation certificate, please provide your details below. If you do not wish for a certificate, please proceed to the next page.

Please check your details as you will not be able to return to this question.

First name	<input type="text"/>
Last name	<input type="text"/>
School / Institution	<input type="text"/>
Email	<input type="text"/>