



MALDIVES ENVIRONMENTAL MANAGEMENT PROGRAMME

CORAL REEF ECOSYSTEM MONITORING

STRATEGY AND WORKPLAN

02nd July 2009



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What is the point?

2

Some concepts/principles

3

Proposed key indicators

4

Technical monitoring

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Community monitoring

6

Proposed preconditions



1

What is the point?

“Behold! In the creation of the heavens and the earth; in the alteration of the Night and the Day; in the sailing of the ships through the Ocean for the profit of mankind; in the rain which He sends down from the skies, and the life which He gives therewith to an earth that is dead; in the beasts of all kinds that He scatters though the earth, in the change of the winds, and the clouds which they trail like their slaves between the sky and the earth; - here indeed are signs for a people who are wise”.

Sura 2 aya 164



1

What is the point?

To provide objective evidence of links between coral reef ecosystem health in Maldives, the quality of life of its citizens and the factors influencing these links.

To use this evidence to do something if there is a problem.



2

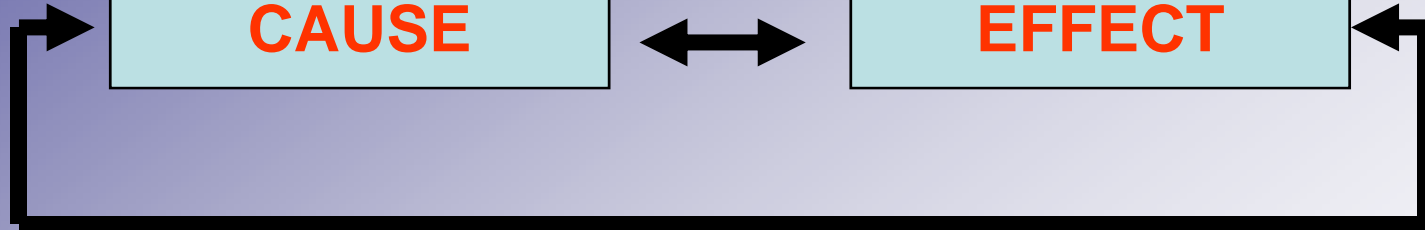
Some concepts/principles

IMPACT

CAUSE



EFFECT





2

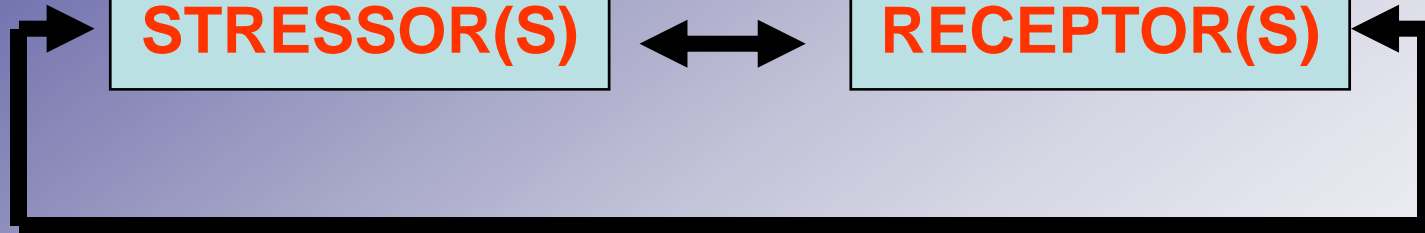
Some concepts/principles

IMPACT

STRESSOR(S)



RECEPTOR(S)





2

Some concepts/principles

IMPACT

CONSEQUENCE

x

LIKELIHOOD

Direct/Indirect

Duration

Cumulative

ACTIVITY

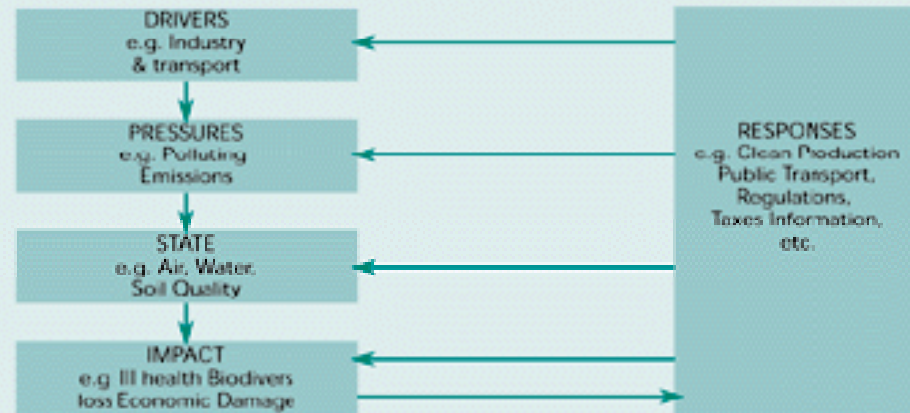


2

Some concepts/principles

PROCESS INTEGRATION (DPSIR FRAMEWORK)

The DPSIR Framework for reporting on environmental issues:



The role of EEA is:
To provide information on
the DPSIR elements and
their interconnections,
and on the effectiveness
of responses.

Increased economic activity (**Driver**) facilitates more diving holidays (**Pressure**). The divers break the coral (**Impact**) that is normally not broken (**State**). Efforts are made to reduce diver damage by restricting access to divers who are trained to be neutrally buoyant (**Response**).



3

Some concepts/principles

INDICATOR

An indicator basically comprises a number of linked attributes, one of which is the name of the indicator.

The key elements of an indicator are:-

A name

A location (geographic and time)

A quantity

A means/method for measurement

Links to other indicators

Including controls.....



3

Some concepts/principles

SCALABILITY

A technical measurement should be comparable with a less technical measurement. For example:-

- (1.1.1.1. Live Hard coral species - major training)**
- (1.1.1. Live Hard coral lifeform - moderate training))**
- (1.1. Live Hard coral – limited training)))**

All levels allow for a comparison of live hard coral cover.



3

Key Indicators

DEPENDENCY

Does the population depend on coral reef ecosystem health and if so to what extent?

VULNERABILITY

Is Maldives vulnerable to loss of coral reef ecosystem health and if so how vulnerable?

COMMITMENT

Do Maldivians really care about coral reefs? If so how can it be shown that they care? If not why should anybody else be bothered?

VALUE

Do coral reefs have any intrinsic value that is not reflected in dependency or commitment?



3

Key Indicators

GREENHOUSE GASSES

**LIVING HARD CORAL COVER
PRESENT/ABSENT**

INUNDATION

**OTHER REEF
SUBSTRATE TYPE(S)**

WATER PH

**CATCH PER UNIT
EFFORT OF CORAL
REEF DEPENDENT
SPECIES**

WATER TEMPERATURE

**CORALLINE ALGAE
PRESENT/ABSENT IN
THE ATOLL RIM CREST**

SEA LEVEL

**PROTEIN FROM
MALDIVES SOURCED
FISH (BY TYPE)**

ATTITUDE AND OPINION



3

Key Indicators

LIST

CONSOLIDATE

AGREE

DELIVER

Key cause-effect linkages

SMART
(specific, measurable,
achievable, relevant,
timebound)

KISS
Keep it simple stupid!

LOGICAL FRAMEWORK

Goal
Objective
Results
Outputs
Activities
Means
Costs



4

TECHNICAL MONITORING

Workshop 1 on 09th July to stock take current coral reef ecosystem health monitoring initiatives in Maldives and propose a set of measures to improve monitoring.

Workshop 2 on 16th July to identify key indicators of coral reef ecosystem health to be monitored.

Workshop 3 on 23rd July to present, discuss and agree a survey protocol to technically monitor the agreed key indicators of coral reef ecosystem health.



5

COMMUNITY MONITORING

Workshop 1 on 29th July to present, discuss and agree a framework for community monitoring of coral reef ecosystem health in Maldives and propose a set of measures to improve monitoring.

Discussion and possible testing of suggested monitoring systems in early August.



6

PRECONDITIONS

GOVERNMENT: Government should make a commitment to fund the monitoring of coral reef ecosystem health for all marine protected areas, all inhabited islands and control sites according to the (to be agreed) directives.

TOURISM LEASE CONDITION: It should be a future condition of leases for tourist resort islands that they post a compliance bond against reporting on the ecosystem health of the coral reefs they use as a resource according to the (to be agreed) directives.

SCHOOL CURRICULUM: Any general studies and biology 'O' level or equivalent qualification should include a module on monitoring coral reef ecosystem health according to the (to be agreed) directives.