Tools for planning ecosystem-based approaches to adaptation

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Ecosystem Based Approaches to Adaptation: From Concept to Action
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Outline:

1. New EBA Decision Support Framework – *Moving from Principles to Practice*

2. Practical example on coastal EBA cost-benefit analysis

EBA Decision Support Framework

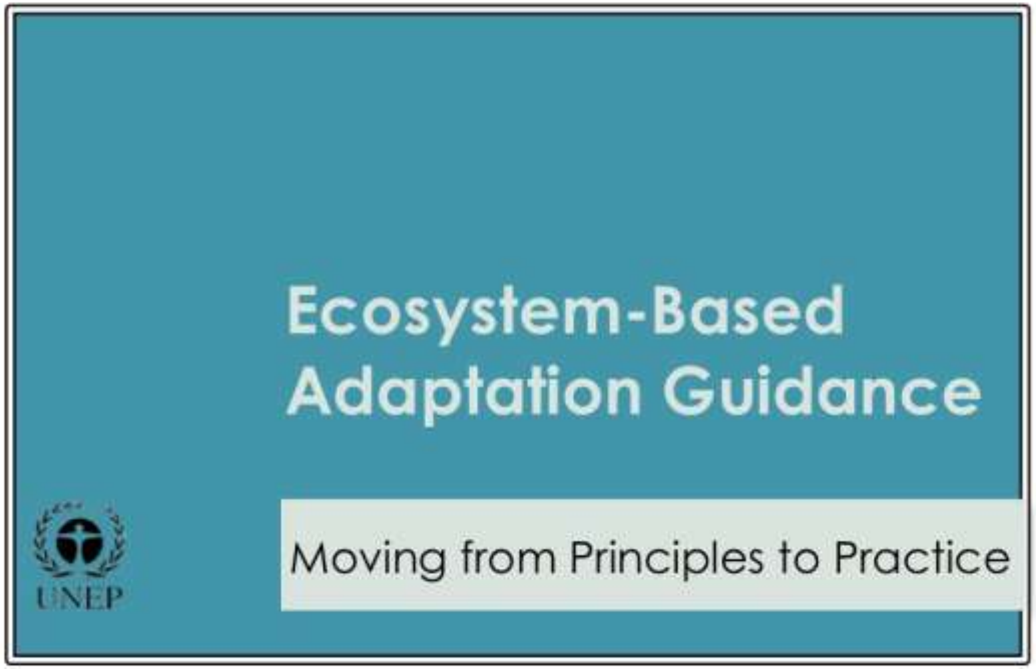
New practical EBA Decision Support Framework and guidance in development to assist planners and decision-makers develop effective EBA interventions.

Three strategic questions:

a) How to compare and select EBA vs. other adaptation options?

b) How to design, plan and design the most appropriate EBA option for a specific context?

c) How to evaluate the effectiveness and long-term adaptation outcome of specific EBA measure?



Input from a range of Partners:

- BirdLife International
- CIFOR
- Conservation International
- EBM Tools Network
- GEF Sec
- GIZ
- IIED
- IUCN
- James Hutton Institute
- SEI, PROVIA
- TNC
- UNDP
- UNEP-DHI Water Center
- UNEP-RISØ Centre
- UNEP-WCMC
- UNFCCC Sec
- University Sunshine Coast
- Zambia Climate Change Network

SOME KEY CONSIDERATIONS

- **Clear context-specificity or ‘it depends’ factors should be explicitly recognised**
- A good adaptation initiative must be measurable and reflective; cost effective; couched within existing policies
- Distinction between ‘project M&E’ and ‘long-term M&E’– new EBA M&E is needed to track longer-term implementation.
- Close link between framing M&E in project design and adaptive implementation is useful to deliver anticipated ‘pathway of change’

KEY OBJECTIVES – The EBA Decision Support Framework should be:

- To consider EBA against a suite of other alternatives – and accept that EBA is not always the right option
- Bring together complex information in accessible format to help decision-making at different levels
- Enable decision-making processes that consider the range of ecosystem services and the accuracy at which they can be quantified
- Provide a flexible training resource process addressing local needs rather than standard 'Off-shelf-resource'

EBA Decision Support Framework – a cyclic, iterative approach

A: Setting the Adaptive Context

What does your system look like?

How is it used?

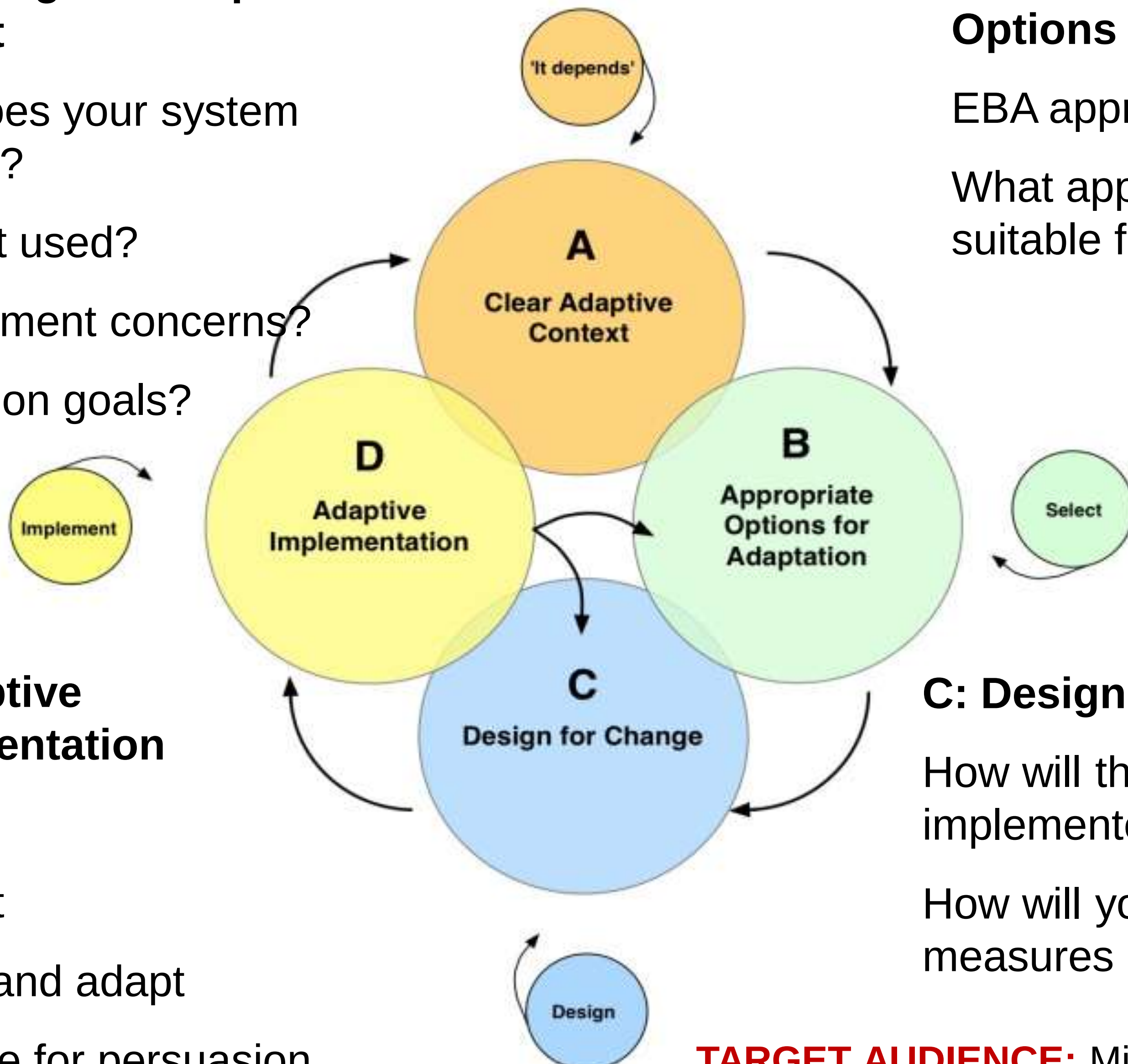
Management concerns?

Adaptation goals?

B: Selecting Appropriate Options for Adaptation

EBA approaches available?

What approaches are suitable for your context?



D: Adaptive implementation

Monitor

Interpret

Reflect and adapt

Evidence for persuasion

C: Design for Change

How will the measure be implemented?

How will you know if the measures are effective?

TARGET AUDIENCE: Mid-level decision-makers and planners at national / local level

Ecosystem-based Adaptation in vulnerable coastal cities in Pacific Small Island Developing States

Pilot project: Lami City, Fiji

UNEP with SPREP and UN-HABITAT

Main Objectives

1. Assess the various adaptation options available to Lami Town, Fiji, a vulnerable coastal settlement

2. Compare the cost-effectiveness of ecosystem-based solutions (e.g. mangrove rehabilitation or watershed management) to traditional engineering solutions (e.g. seawall or dykes)

3. Work with the Lami Town Council to develop a framework for the inclusion of EbA solutions into adaptation strategies

Activities

1. Climate change vulnerability assessment for Lami City

2. Cost-benefit analysis of adaptation options comparing ‘hard engineering’ and ‘ecosystem-based approaches’

3. Incorporation of recommendations into adaptation planning

4. On-the-ground implementation of recommendations (e.g. mangrove rehabilitation as appropriate) with the town council

5. Regional workshop to share results

Preliminary Findings

1. Baseline valuation of ecosystem services = 100K/HH/year

	Benefits (FJD/year)	Equivalent to USD/year	Area (ha)	Households (no.)
Mangrove	49,558	27,004	320	200
Coral Reef	658,491	358,812	1387	10
Seagrasses/ Mudflats	65190	35,914	330	200
Forested Area	7654	4,171	1151	n/a
Total	780893	425,509	3220.5	410

Preliminary Findings

2. Scenarios considered

Status Quo Scenario: No adaptation actions	
Ecosystem Maintenance Scenario Maintaining the current protective effects of ecosystems, preserve and re-establish them to reduce vulnerability.	**Hybrid 2**: Emphasis on Engineering Actions. While including a wide range of adaptation options, the predominant choices are for engineering rather than ecosystem maintenance actions.
Hybrid 1: Emphasis on Ecosystem Maintenance Actions Scenario while including a wide range of adaptation options. Predominantly ecosystem maintenance rather than engineering actions.	**Engineering Actions Scenario** Focusing on engineering actions targeted to improve current infrastructure, take actions to limit the effects of severe weather on that infrastructure and the building of protective barriers in streams and along the shoreline.

Preliminary Findings

Scenario	Avoided Damages	Costs of Environmental Actions	Environmental Benefits	Costs of Engineering Actions	Cost-benefit ratio
Ecosystem Maintenance Actions	463,538,332	9,845,929	13,319,969	0.00	**48.43**
Hybrid 1: Emphasis on Ecosystem Maintenance Actions	463,538,332	7,347,931	9,993,518	4,816,610	**38.93**
Hybrid 2: Emphasis on Engineering Action	463,538,332	2,606,928	3,361,042	14,449,830	**27.37**
Engineering Actions	463,538,332	0.00	1331,997	19,266,440	**24.13**

(Calculations of the discounted costs and benefits for each scenario, calculated over 20 years, at a 3% discount rate. In FJD).

Ecosystem Maintenance Action Scenario: for 1 dollar invested = benefits are **$48.43**.

Engineering Actions scenario: for 1 dollar invested = benefits are **$24.13**.

NB. Study is indicative only, not a general solution

Recommendations

- All four scenarios better than status quo
- Ecosystem Maintenance scenario yields the highest benefit per dollar spent on implementation, while the Engineering Action scenario yields the lowest benefit
- Hybrid actions might be most realistic options.
- Spatial analysis combined with site-based economic data-gathering will highlight distribution of costs and benefits
- Assumption that all scenarios would provide identical benefits in terms of avoided damages should be revisited

SOME CONCLUSIONS AND KEY MESSAGES and NEEDS

- Lack of robust information on EBA options and measures in comparison to more ‘traditional’ adaptation technologies
- One size does not fit all – need to recognize context
- Cost-benefit assessments based on comprehensive ecosystem valuation
- Pilot testing in variety of ecosystem and decision contexts – Invitation for wide future engagement!
- Training tools, e.g. to support NAPA and NAP implementation, targeted training at decision-making / project level
- Capacity building needs? - synthesis and sharing of practical learning
- **Need specific EBA-DSF modules,** e.g. practical M&E, coupling social & ecological M&E, cost-benefit analysis, ecosystem specific tools

Thank you!

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Barriers to Develop and Implement Effective EBA

- Uncertainty and long timeframes
- Lack of information on EBA options compared to ‘traditional’ technologies
- Unclear objectives and no single definition of success
- Unclear definitions, such as ‘resilience’, which may have different meanings in different contexts.
- Diverse vulnerability factors and attribution

Measuring Effectiveness

- Adaptation interventions implemented over short periods; attribution to adaptation results over time is challenging
- Lack of guidance in indicator selection
- Limited financing to establish baselines and conduct monitoring