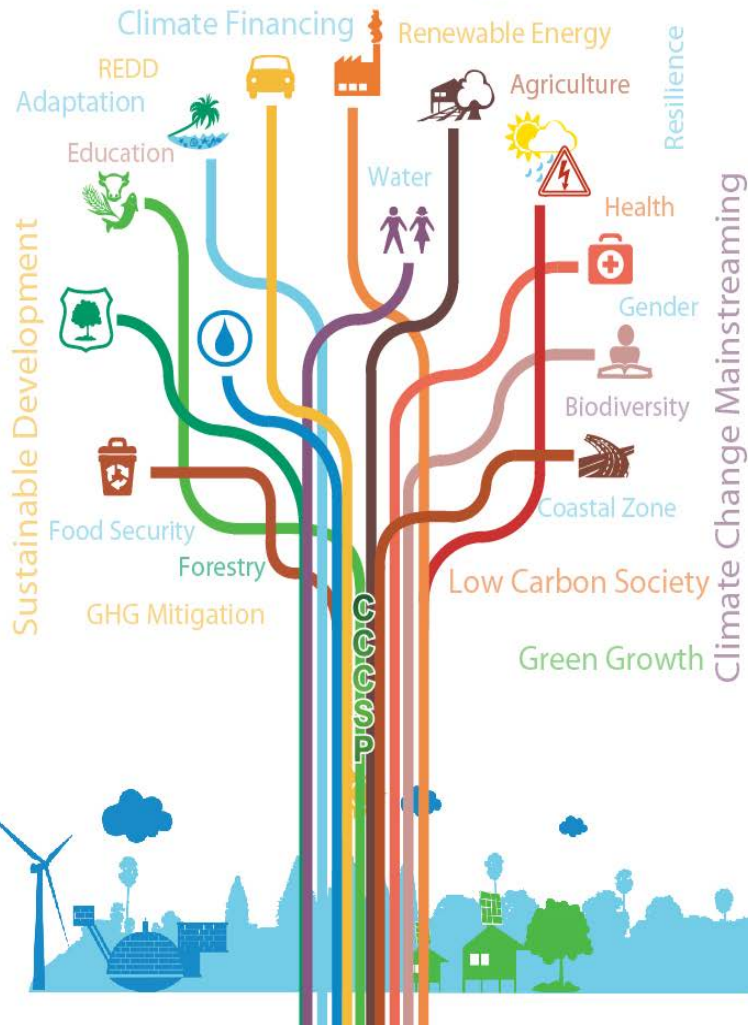


3rd National Forum on Climate Change

5 – 7 November 2013, Cambodia

“Taking Action for Sustainable Development in the Changing Climate”

Climate Change



CC Response in Ecosystem Based Adaptation (EBA)

Mr. Ouk Navann

6 November 2013

CAMBODIA CLIMATE CHANGE ALLIANCE

Implemented by:



Ministry of Environment

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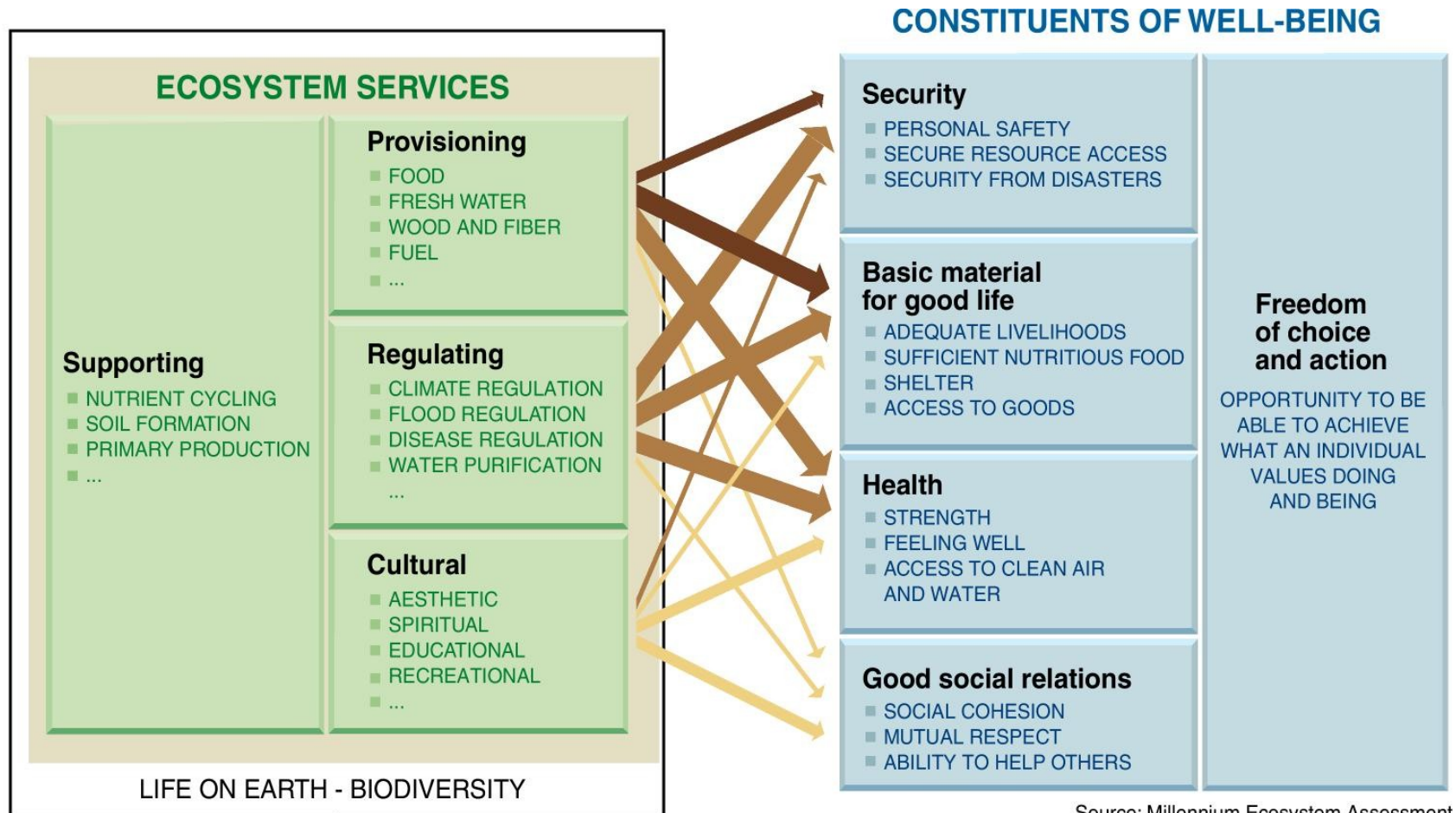
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1.1 Definition of EBA

- The use of biodiversity and ecosystem services as part of an overall strategy to help people to adapt to the adverse effects of climate change.
- Enhancing the resilience of ecosystems to climate change
 - Addressing climate change impacts on ecosystems, and ensuring continued benefits from interventions for maintaining & promoting ecosystem services
- Using ecosystems as a means for reducing vulnerability and enhancing adaptation to climate change
 - Ecosystem services help to manage climate risks – and support resilience of human socio-economic systems

1.2 Ecosystem Services and Human Well-Being



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

Low

Medium

High

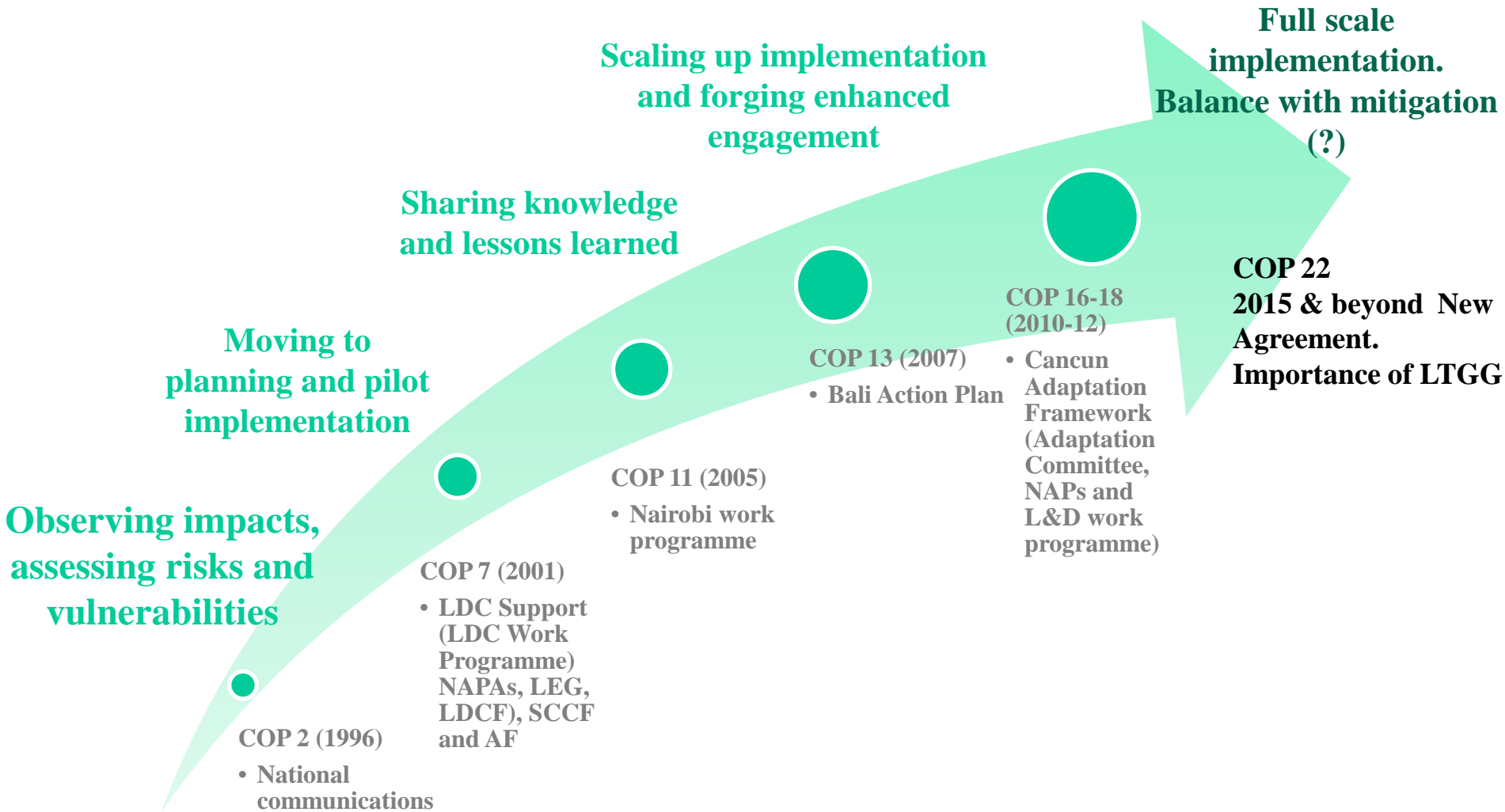
ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

Weak

Medium

Strong

1.3 Evolution of Adaptation Under the UNFCCC



1.4 Adaptation and EBA

Adaptation is an interactive process, including understanding climate variability as well as patterns and dynamics underlying societal vulnerabilities, evaluating costs and benefits, building capacity and continuous learning from monitoring and evaluation of actions.

Ecosystem-Based Adaptation harnesses the natural climate resilience of ecosystems as part of an overall adaptation strategy to help people and communities minimize the negative impacts and benefit from the positive effects of climate variability and change.

Some Examples:

- **Water Security:** Building Dams and Managing Upstream Riparian Forests
- **Coastal Defenses:** Building Seawalls and Managing Coastal Ecosystems

1.5 Types of Ecosystem

- Mountain ecosystems
- Coastal ecosystems
- Arid and semi-arid ecosystems
- River basin ecosystems



1.6 Lessons learned

- Needs to be part of a broader strategy
 - (adaptation, climate change & development)
- Bridge multiple sectors and stakeholders
- Internalise externalities
- Think in multiple scales (temporal & spatial)
- Participatory decision-making
- Engage traditional & indigenous knowledge
- Strong M&E from outset

1.7 Challenges

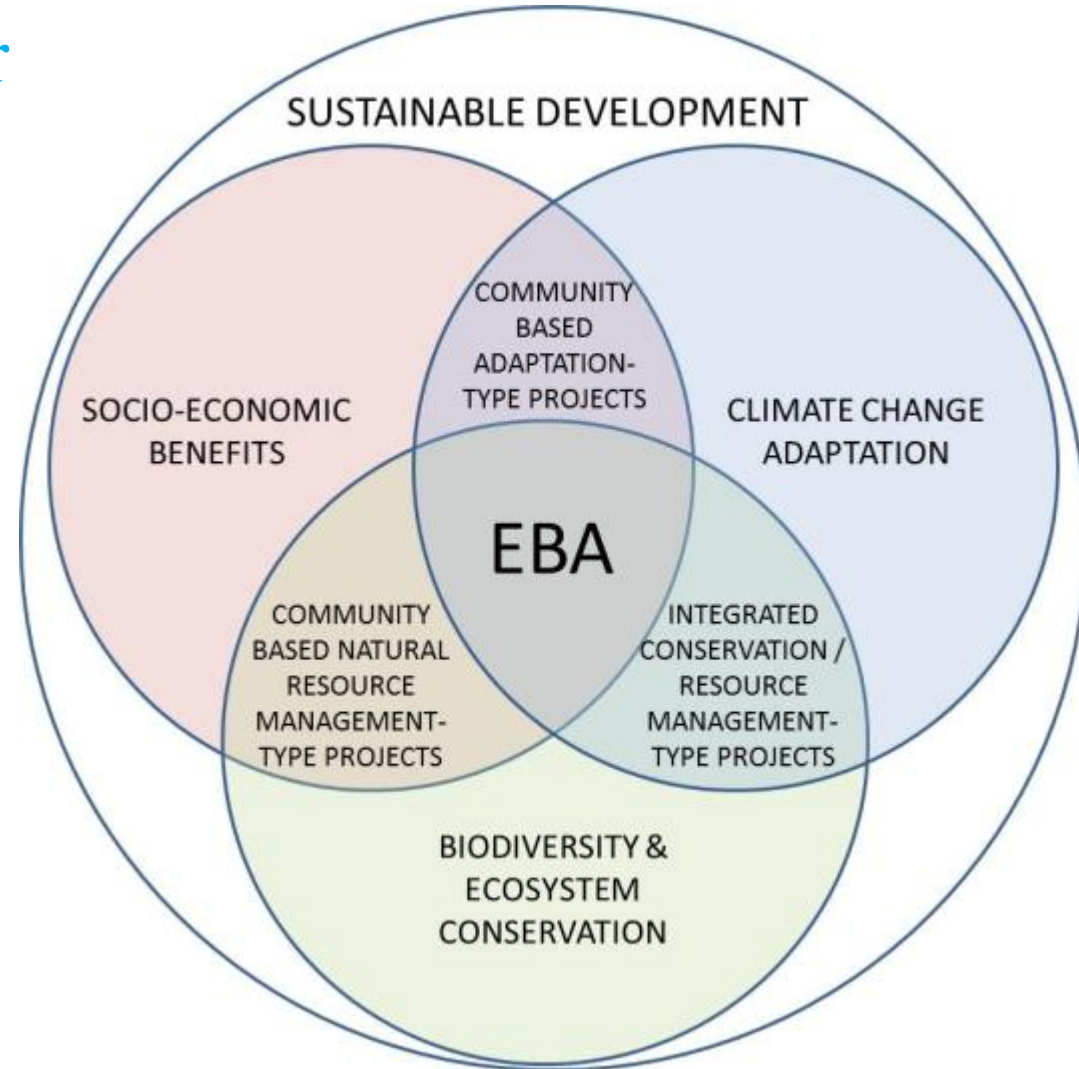
- Mind set of decision-makers
 - First and foremost think of hard infrastructure options
 - Cost-benefit analyses biased against it
- EBA varies with context and ecosystem –
 - hard to get a single message to decision makers
 - reaching most vulnerable communities
- Limited data showing benefits of combining ecosystem management and social resilience
 - Quantification of costs & cost effectiveness
 - Multiple sectors and stakeholders involved
 - M&E – attribution, time lag, duration, etc.

1.8 Looking Ahead

- Explore synergies between EBA and other approaches
 - EBA is complementary to DRR / DRM, NRM, livelihoods
- Develop approaches and tools to support design and implementation
 - Multiple benefits / multi-criteria evaluation
- Emphasize learning and integrated M&E
 - Practice is leading theory; empirical validation of constructs and filling knowledge gaps
- Place EBA within the broader context of climate resilient development
 - Natural infrastructure, green economy
- Recognize that there are multiple entry points
 - Cities are often on the front-lines of innovation

1.9 Synergies With Other Approaches

- Overlaps with disaster risk management, community based natural resource management, REDD+,
- Mix of human needs & environmental sustainability
- Strong local-level synergies



1.10 Example of an EBA project: China's green wall

- **346 km** long
- **50 years research :**
- **178 species tested** (88 grew up and 3 were selected: *Calligonum/Haloxylon/Tamarix*)
- **16 years** to build from 1991 to 2006
- planted in rows, in belts of **72-78 meters** wide on each side of the road
- Drip irrigated with underground water which reaches the salinity of sea water
- **3128 hectares** of the desert have been converted into the Green Wall
- **20 million** plants planted over 2 years
- **Cost: ~\$10000 per hectare**, with total maintenance cost of **~\$4.7 million per year**
- Cost of removing the sand manually: **\$15 million per year.**
- Total investment over a 20 year period: **~\$125 million**
- Cost of removing the sand: **~\$ 300 million**



2. EBA in Cambodia

“Enhancing Climate Resilience of Rural Communities Living in Protected Areas in Cambodia”



3rd National Forum on Climate Change



2.1 Project Information

- **Country:** Cambodia
- **Project Title:** ENHANCING CLIMATE CHANGE RESILIENCE OF RURAL COMMUNITIES LIVING IN PROTECTED AREAS IN CAMBODIA
- **Project Locations:** BoeungPer WS, PhnomPrech WS & Kulen NP
- **Project Period:** 5 years (2013-2017)
- **Project Budget:** 4,954,273 \$

Project Locations

- **Boeung Per WS**
CPA Chiok Boeung Prey
CPA Chom Thlok
CPA Skor Mreach
- **Phnom Prech WS**
CPA Ronouk Khgeng
- **Phnom Kulen NP**
CPA Chop Tasok

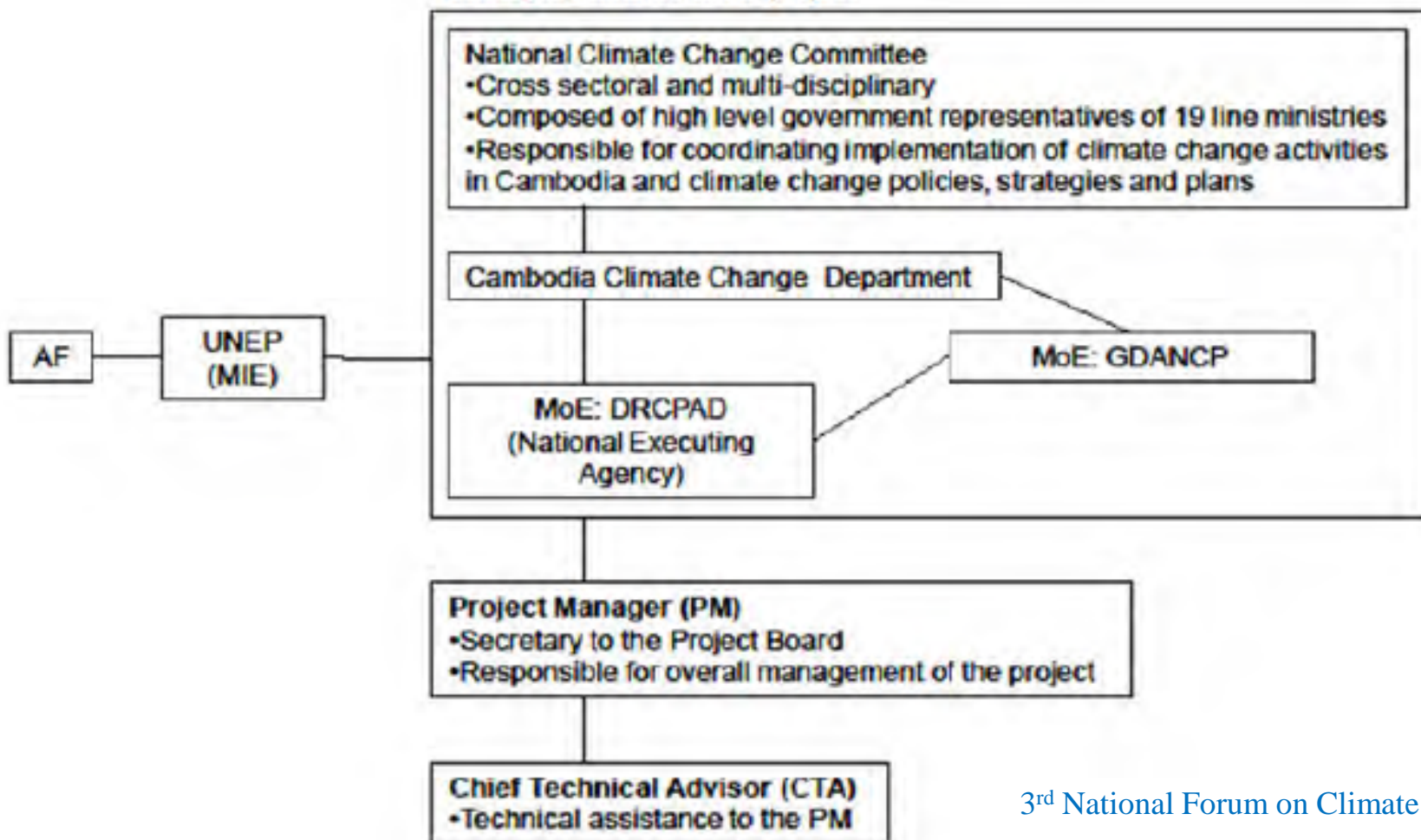


Figure 7: Location of the three PAs and five CPAs where the AF project will be implemented¹²⁵.

2.2 Institutional Arrangements

Project Board (PB)

-Strategic guidance of the project





2.3 Project Goal and Objective

- The overall goal is to increase food supply and reduce soil erosion in communities surrounding the five CPAs by:
 - ✓ restoring at least 1,875 ha of degraded forests with appropriate plant species;
 - ✓ enrichment planting of rice paddy boundaries and other cultivated areas with multi-use tree species that will enhance crop productivity;
 - ✓ Trialling plots of several drought-tolerant hybrid rice cultivars to assess their potential yield and suitability for cultivation;
 - ✓ Intensifying and diversifying the productivity of at least 1,907 family agriculture areas.
- The objective of the AF project is consequently to enhance the climate change resilience of communities living around five CPA intervention sites, as well as downstream communities, to the climate change-induced hazard of erratic rainfall.



2.4 Project Components

The AF project will deliver on this objective through three components, namely:

- **Component 1: Protocols for ecoagriculture interventions**
 - ✓ Consultative and participatory approach for V&A assessment and preferably agricultural intervention
 - ✓ Socio-economic/market assessments
 - ✓ Forest restoration and agriculture intervention (drought-tolerant hybrid rice cultivars)
- **Component 2: Concrete ecoagriculture adaptation interventions**
 - ✓ Built capacity including capacity to plan, implement and maintain ecoagriculture interventions
 - ✓ Built climate resilience in CPA intervention sites (Forest restoration and agricultural intervention)
 - ✓ Enhanced livelihoods through sustainable development of NTFPs and the promotion of sustainable alternative livelihood strategies.
- **Component 3: Institutional capacity, awareness raising and upscaling**
 - ✓ Raise awareness at a local level of the importance of ecoagriculture for protecting and enhancing commercial and subsistence activities
 - ✓ Promote ecoagriculture activities through institutional capacity building and proposed revisions to policies, strategies and legislation
 - ✓ Upscaling national ecoagriculture strategy for CPAs in Cambodia.



2.5 Project todate: Baseline Study

- The baseline study is currently underway
- The baseline study will include:
 - ✓ socio-economic surveys;
 - ✓ field surveys to determine the agricultural and home gardening techniques;
 - ✓ field surveys to assess the present state of forest ecosystems; and
 - ✓ the delineation of specific areas for project reforestation and ecoagricultural interventions
- The baseline study will assess and revise project indicators and targets
- The data collected during the baseline study will set the benchmark for each project indicator and target
- **Challenges associated with baseline study:**
 - ✓ Coordination among the project consultants
 - ✓ Coordination of the project stakeholders
 - ✓ Travel to the field sites
 - ✓ Accessing spatial data



2.6 Project Benefits

- **Benefit to Communities:**
 - ✓ improved food supply and food security during times of hardship
 - ✓ increased availability of NTFPs, timber and fuelwood
 - ✓ enhanced recreation and tourism opportunities
 - ✓ reduced vulnerability to climate change
- **Benefit to Environment:**
 - ✓ watershed protection and reduced soil erosion
 - ✓ pollution reduction
 - ✓ improved soil fertility
 - ✓ carbon storage and nutrient cycling
 - ✓ protection of biodiversity.

Thank You !

Mr. Ouk Navann

NPC, EBA in Cambodia

“Enhancing Climate Resilience of Rural Communities Living in Protected Areas”

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