

# The Economics of Ecosystems and Biodiversity for Southeast Asia (ASEAN TEEB) Initiative



**Norman Emmanuel C. Ramirez**

Capacity Development Specialist, and  
Coordinator, ASEAN Heritage Parks Programme  
ASEAN Centre for Biodiversity

The East Asian Seas Congress 2015  
16-21 November 2015 | Danang, Viet Nam



# Outline of presentation

- What is TEEB?
- The TEEB Approach
- Rationale of the ACB initiative
- ACB and TEEB
- ASEAN TEEB Scoping Study
- Next Steps

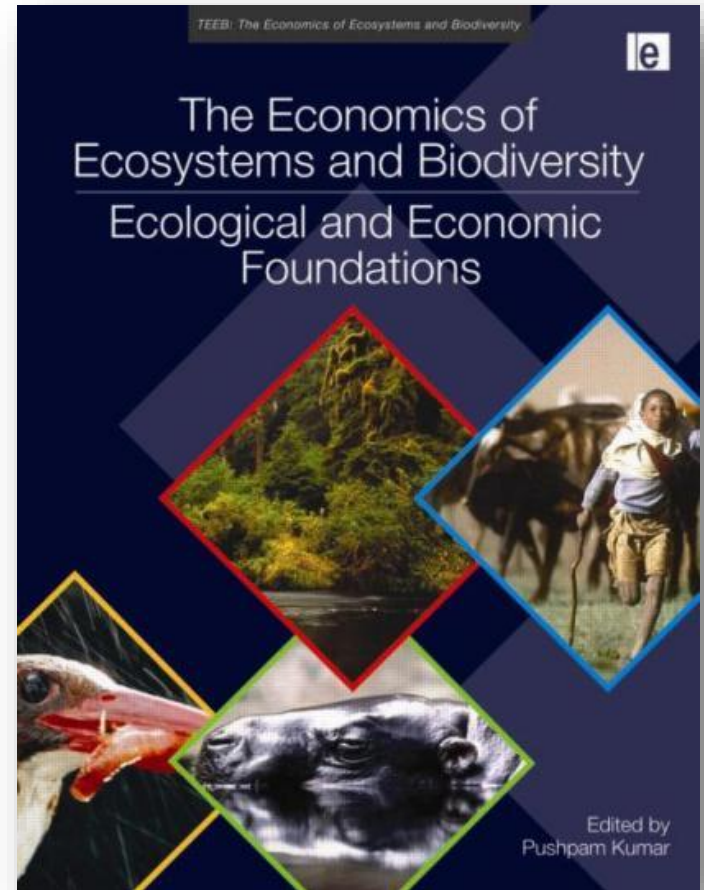
# ASEAN Centre for Biodiversity



- intergovernmental regional centre of excellence established through an agreement among the Governments of the ASEAN Member States (AMS)
- facilitates cooperation and coordination among the 10 AMS and with regional and international organizations
  - conservation and sustainable use of biological diversity and the fair and equitable sharing of benefits arising from the use of such biodiversity in the ASEAN region

# What is TEEB?

- The Economics of Ecosystems and Biodiversity (TEEB) is a global initiative focused on “making nature’s values visible”
- Its principal objective is to mainstream the values of biodiversity and ecosystem services into decision-making at all levels



# The TEEB approach

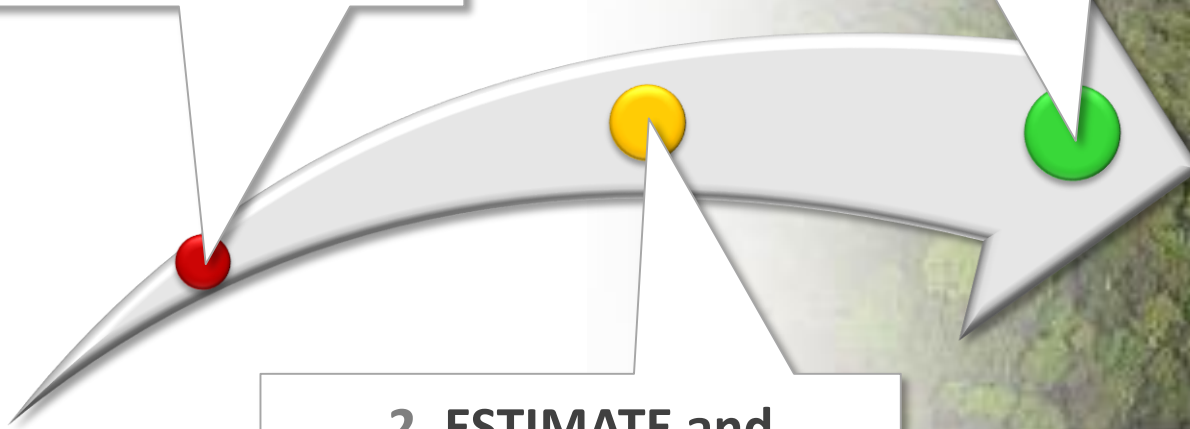
- Follows a structured approach to valuation that helps decision-makers:
  - **recognize** the wide range of benefits provided by ecosystems and biodiversity,
  - **demonstrate** their values in economic terms, and, where appropriate,
  - suggest how to **capture** those values in decision-making

# TEEB steps

**1. IDENTIFY and ASSESS** the full range of ecosystem services and people affected

**3. CAPTURE** the value of ecosystem services and seek **SOLUTIONS**

**2. ESTIMATE and DEMONSTRATE** the value of ecosystem services





# TEEB “stepwise approach”

- 1 specify and agree the policy issue with stakeholders
- 2 identify which ecosystem services are most relevant to the policy issue
- 3 define information needs and select appropriate methods
- 4 assess ecosystem services, expected changes in availability and distribution
- 5 identify and appraise policy options
- 6 assess distributional impacts of policy options on different groups



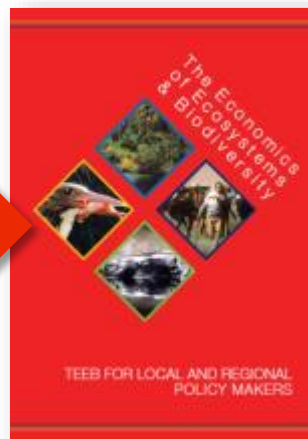
# TEEB can be applied in a wide variety of contexts

- providing information about biodiversity benefits and costs
- creating a common language for policy makers
- revealing opportunities to use nature to provide valuable services
- emphasizing the urgency of action
- informing and designing policy incentives

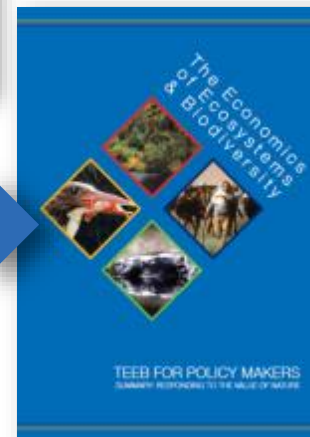


# communicating TEEB messages to key target groups

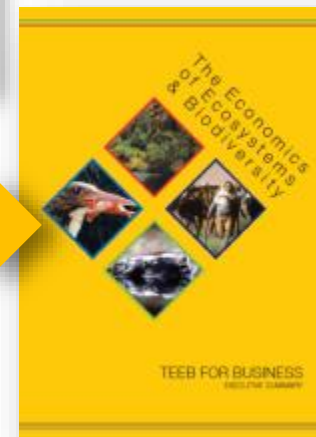
TEEB for Local and  
Regional Policy Makers



TEEB for National and  
International Policy Makers

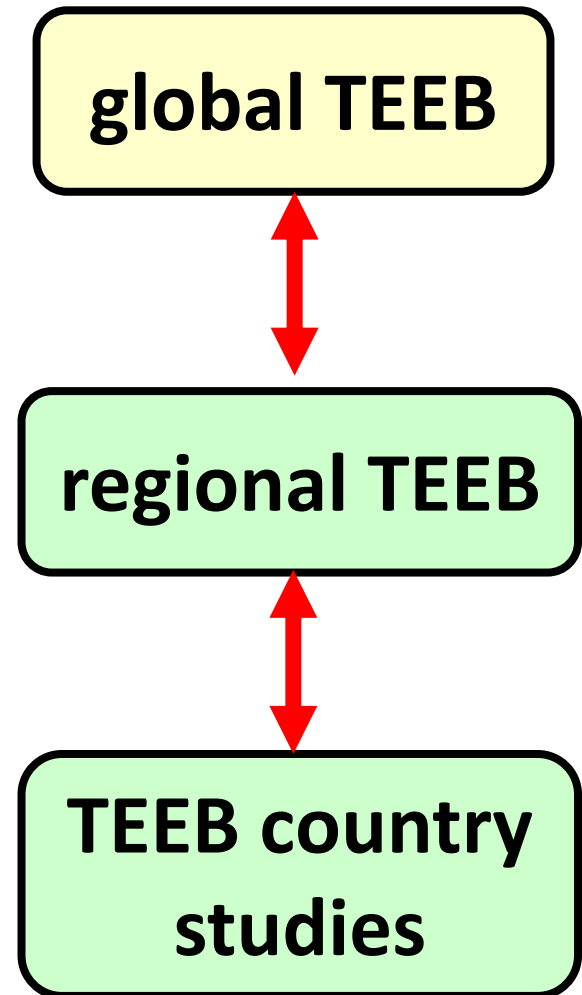


TEEB for  
Business



# Rationale of the ACB initiative

- recognizes the need to promote the global initiative in the ASEAN region
- TEEB is a priority thematic area of ACB
- contribute to achieving Aichi Targets 2 and 3



# Rationale of the ACB initiative

## Target 2

By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

# Rationale of the ACB initiative

## Target 3

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

# ACB and TEEB



Foreign &  
Commonwealth  
Office

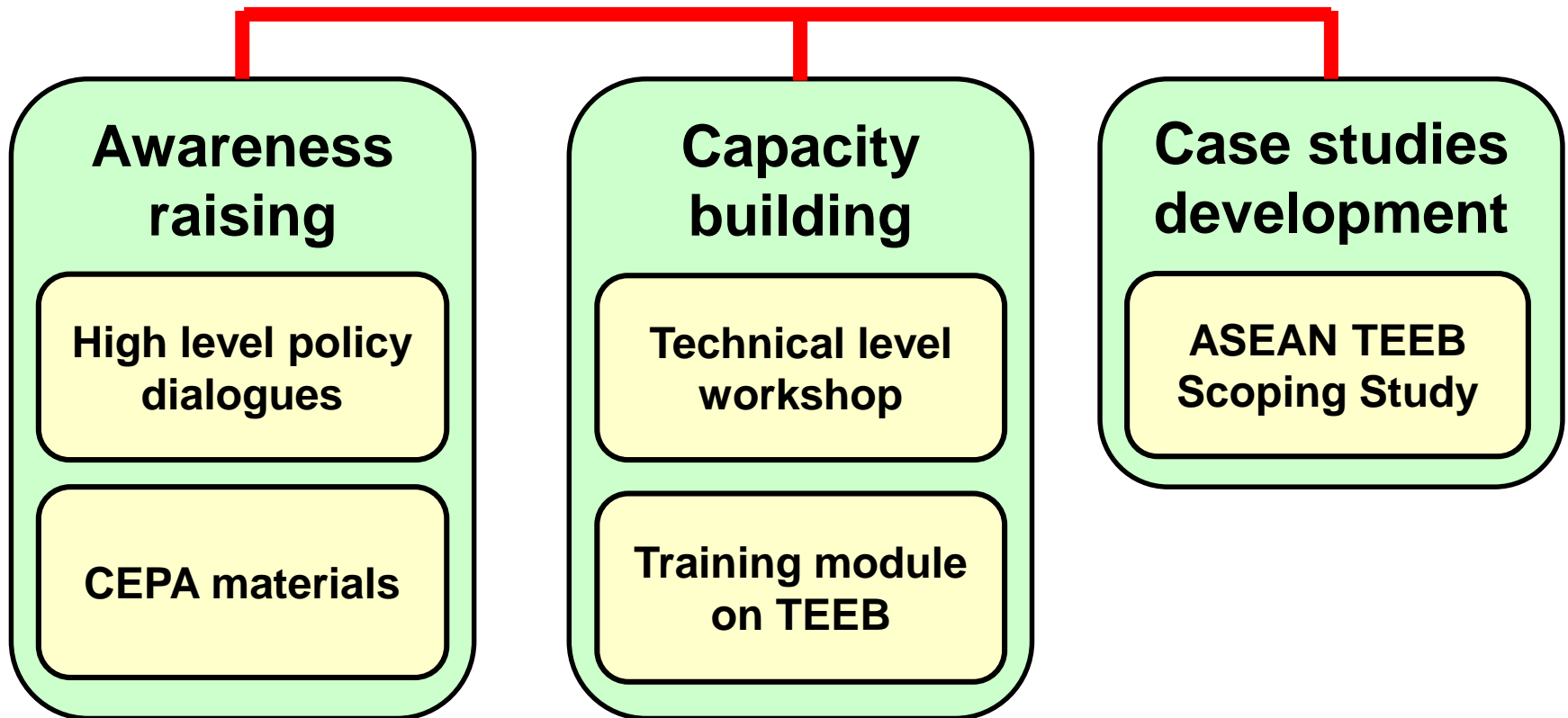


- ACB collaborated with the British Foreign and Commonwealth Office and GIZ to jointly undertake projects on TEEB for Southeast Asia
  - “Disseminating the Values of Ecosystems and Biodiversity to Enhance Climate Change and Biodiversity Strategies in Southeast Asia”
  - technical assistance from UNEP-Nairobi



# ACB and TEEB

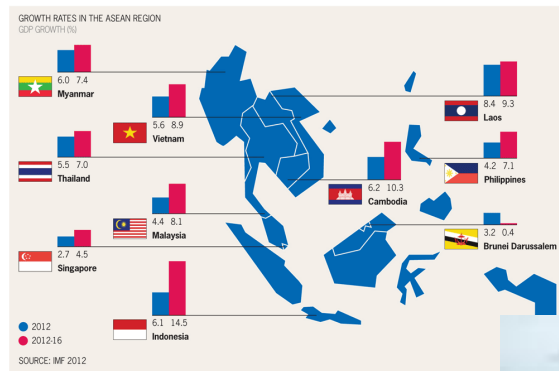
## Project activities



# ASEAN TEEB Scoping Study

## Rationale:

- Nexus between development, climate change and biodiversity in Southeast Asia
- TEEB is a next step for mainstreaming green growth in development processes of the region



# ASEAN TEEB Scoping Study

## Objectives:

**1. Gather evidence on the value of ecosystem services in Southeast Asia**



**2. Develop four case studies on key ecosystems**



**3. Identify case studies for full ASEAN TEEB study**

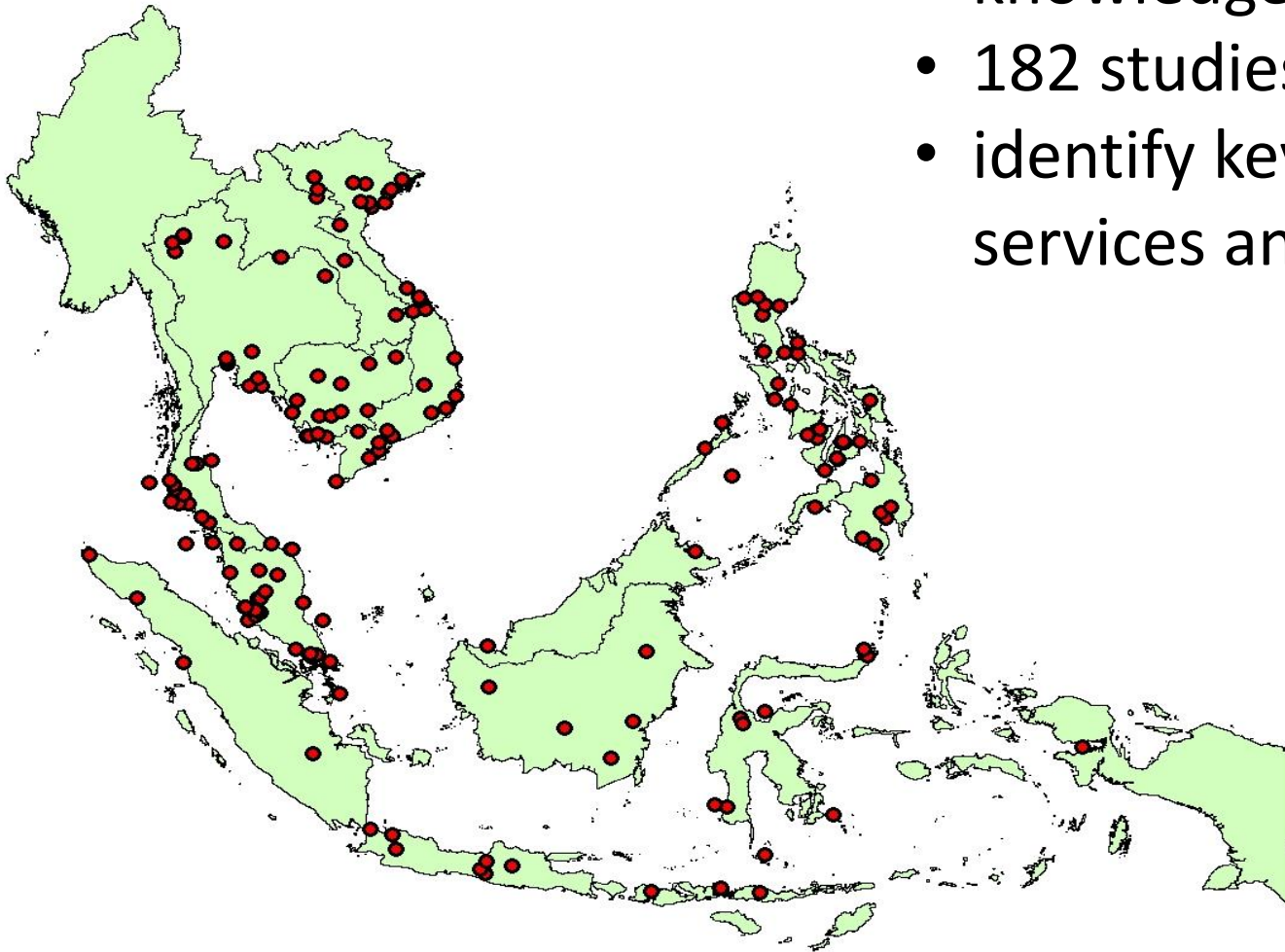
# ASEAN TEEB Scoping Study

## **Methodology/Tasks:**

- 1) Gather/Call for Evidence
- 2) Review studies and develop database
- 3) Identify key ecosystems and ecosystem services
- 4) Identify case studies for valuation
- 5) Develop “business as usual” and future scenarios
- 6) Apply valuation using value transfer method

# ASEAN TEEB Scoping Study

- builds on existing knowledge
- 182 studies in 8 countries
- identify key ecosystem services and gaps





# ASEAN TEEB Scoping Study

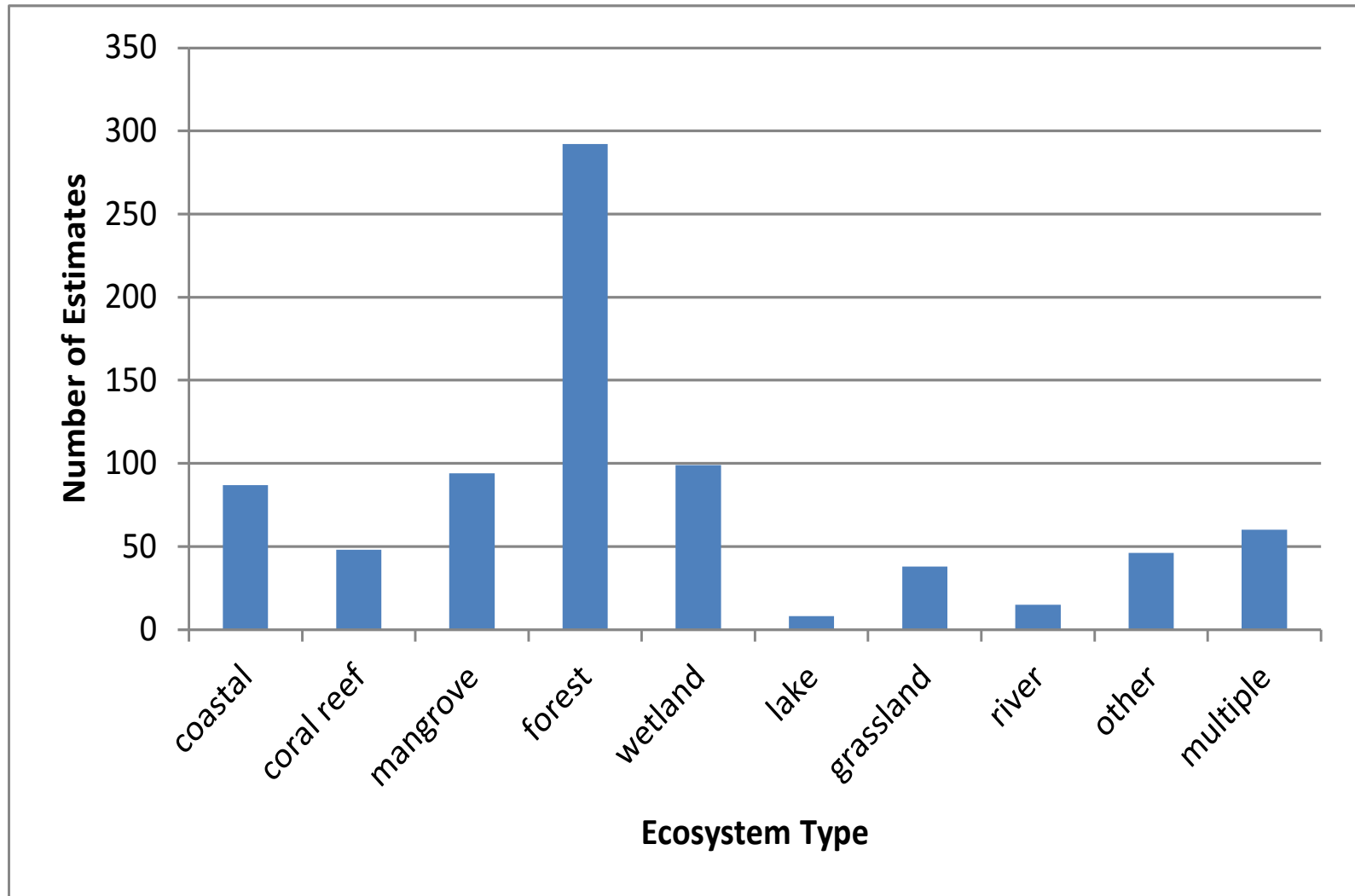
<http://bim.aseanbiodiversity.org/elib/eliblist.php>

- Seagrasses
- South China Sea
- Species
- Sulu-Sulawesi Seascape
- TEEB
  - A contingent valuation study of scuba diving benefits Case study in Mu Ko Similan Marine National Park, Thailand
  - Divers' willingness to pay to visit marine sanctuaries an exploratory study
  - Economic valuation of the Leuser Ecosystem in Sumatra
  - Economic Valuation of Watershed Services-Batang Gadis National Park, Mandailing Natal, North Sumatra, Indonesia
  - Economic Value of Groundwater Protection in the Mekong Delta
  - Lowland Forest Loss in Protected Areas of Indonesia Borneo
  - Measuring The Economic Value of Natural Attractions in Rawapening, Semarang District, Indonesia
  - Valuing direct use values of wetlands: a case study Tam Giang-Cau Hai lagoon wetland in Vietnam
  - Visitors' Willingness To Pay For An Entrance Fee: A Case Study Of Marine Parks In Malaysia
- Transboundary Arrangements
- Transboundary Management
- Tropical Marine Issues
- Wetlands

Reference Details	
Asafu-Adjaye, John and Sorada Tapsuwan. 2008. A contingent valuation study of scuba diving benefits: Case study in Mu Ko Similan Marine National Park, Thailand. 29(2008). 1122-1130	
Reference No.	08694
Title	A contingent valuation study of scuba diving benefits: Case study in Mu Ko Similan Marine National Park, Thailand
Author	Asafu-Adjaye, John and Sorada Tapsuwan
Other Author(s)	Sorada Tapsuwan
Place of Publication	
Publisher	
Publication Year	2008
Volume No.	29
Issue No.	2008
Page No(s)	1122-1130
Note ( Abstract, Brief Description)	Coral reefs, a major source of marine tourism, are under threat worldwide due to human activities. There is an urgent need for information that could be used to promote efficient marine park management. In this study the economic benefits associated with scuba diving in Mu Ko Similan Marine National Park, Thailand, is estimated using a single- and double-bounded dichotomous choice contingent valuation survey design. The results indicate that divers are willing to pay about US\$27.07–62.64 per person per annum on average, resulting in aggregate benefits of between US\$932,940 and US\$2.1 million per annum. The present value of these aggregate benefits ranges between US\$31 and US\$71 million, using a social discount rate of 3%. The policy implications for park management are discussed.
Keywords	Ecotourism; Marine protected areas; Scuba diving; Contingent valuation method; Dichotomous choice
Source/File	28 - Asafu-Adjaye and Tapsuwan 2008 A contingent valuation study of scuba diving benefits Case study in Mu Ko Similan Marine National Park, Thailand.pdf

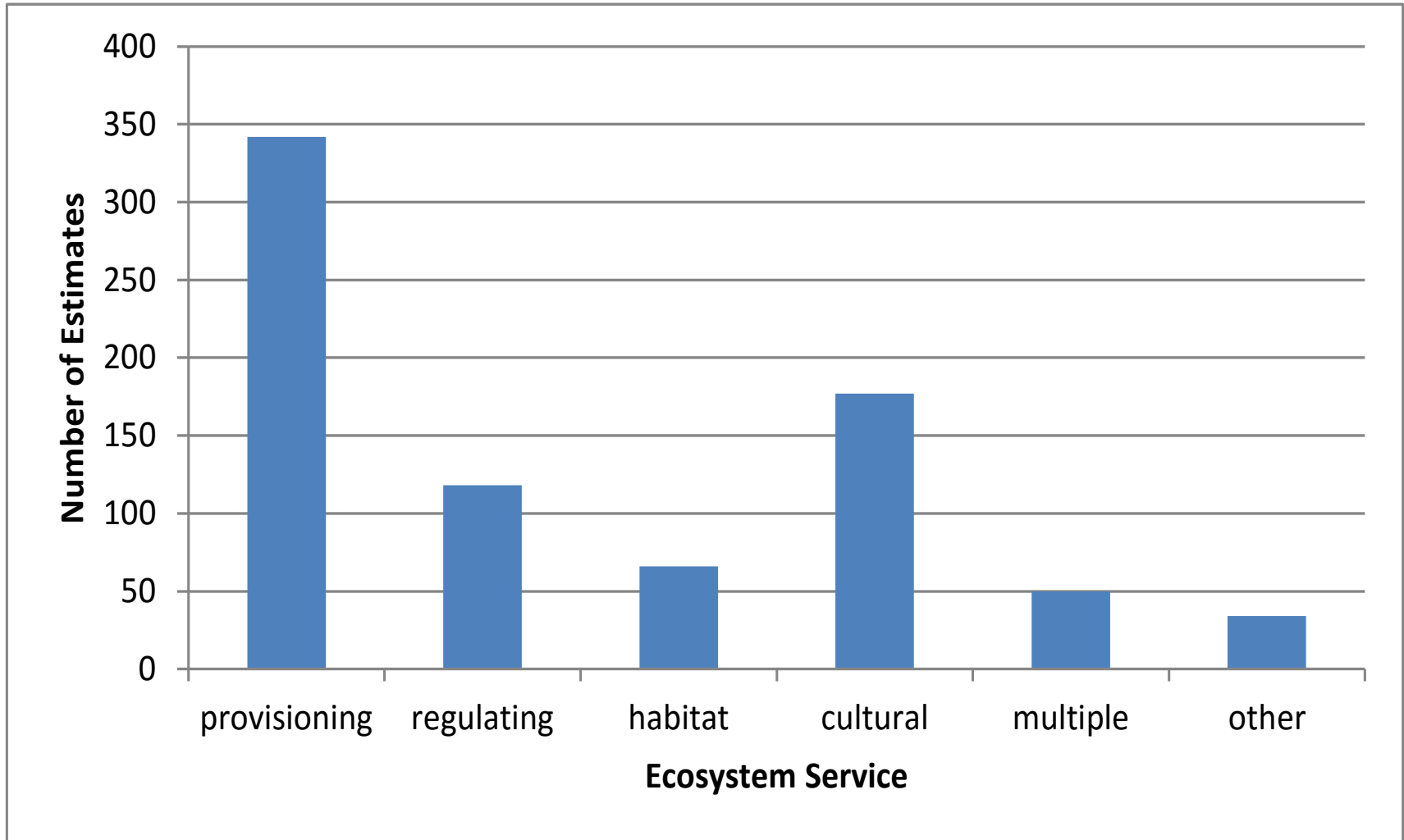
# ASEAN TEEB Scoping Study

## Value estimates for ecosystems:



# ASEAN TEEB Scoping Study

## Value estimates for ecosystem services:



# ASEAN TEEB Scoping Study

## Ongoing key initiatives in the ASEAN region:

- Enhancing the Economics of Biodiversity and Ecosystem Services in Thailand / Southeast Asia (ECOBEST) – **EU, GIZ**
- Project for Ecosystem Services (ProEcoServ) – **UNEP-GEF**
- Rewarding Upland Poor for the Environmental Services they provide (RUPES) – **ICRAF**

# ASEAN TEEB Scoping Study

## Ongoing key initiatives in the ASEAN region:

- Wealth Accounting and Valuation of Ecosystem Services (WAVES) – **World Bank**
- The value of water in the Mekong basin - **WorldFish Center**
- Heart of Borneo – **HoB**
- Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security – **CTI-CFF**



# ASEAN TEEB Scoping Study

**Four case studies on key ecosystems:**

**Mangroves**



**Coral reefs**



**Forests**

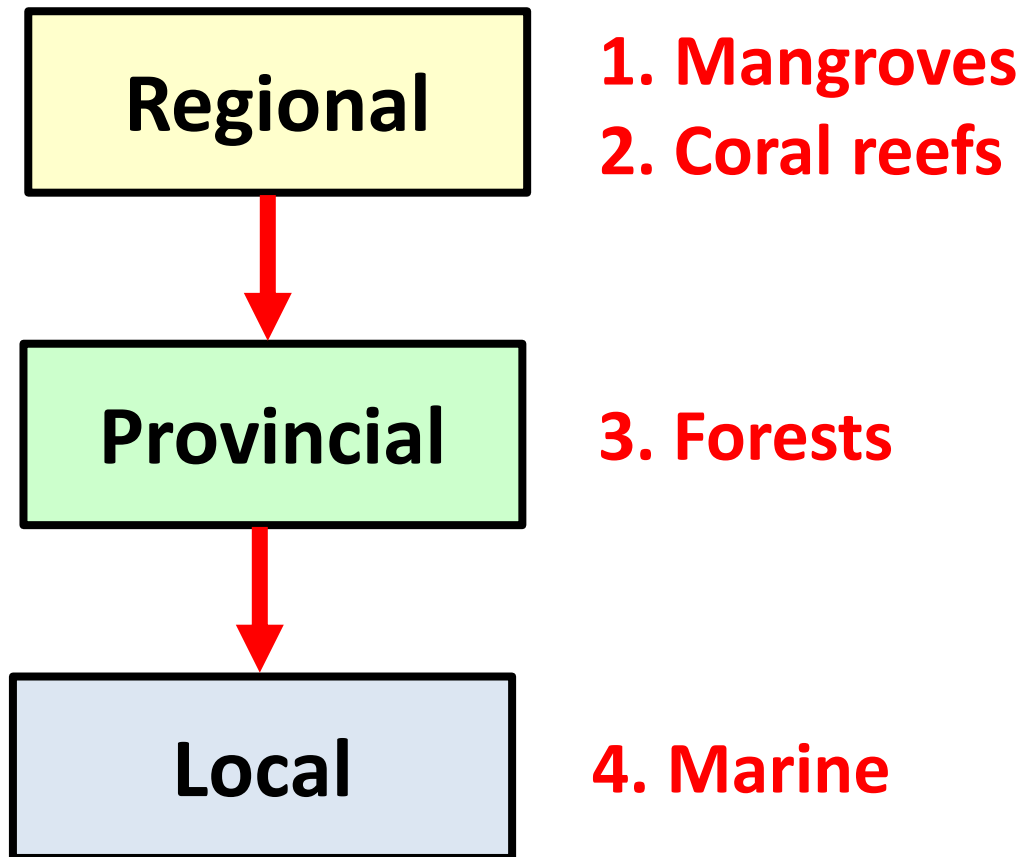


**Marine protected area**



# ASEAN TEEB Scoping Study

Four case studies at different levels/scales:



# ASEAN TEEB Scoping Study

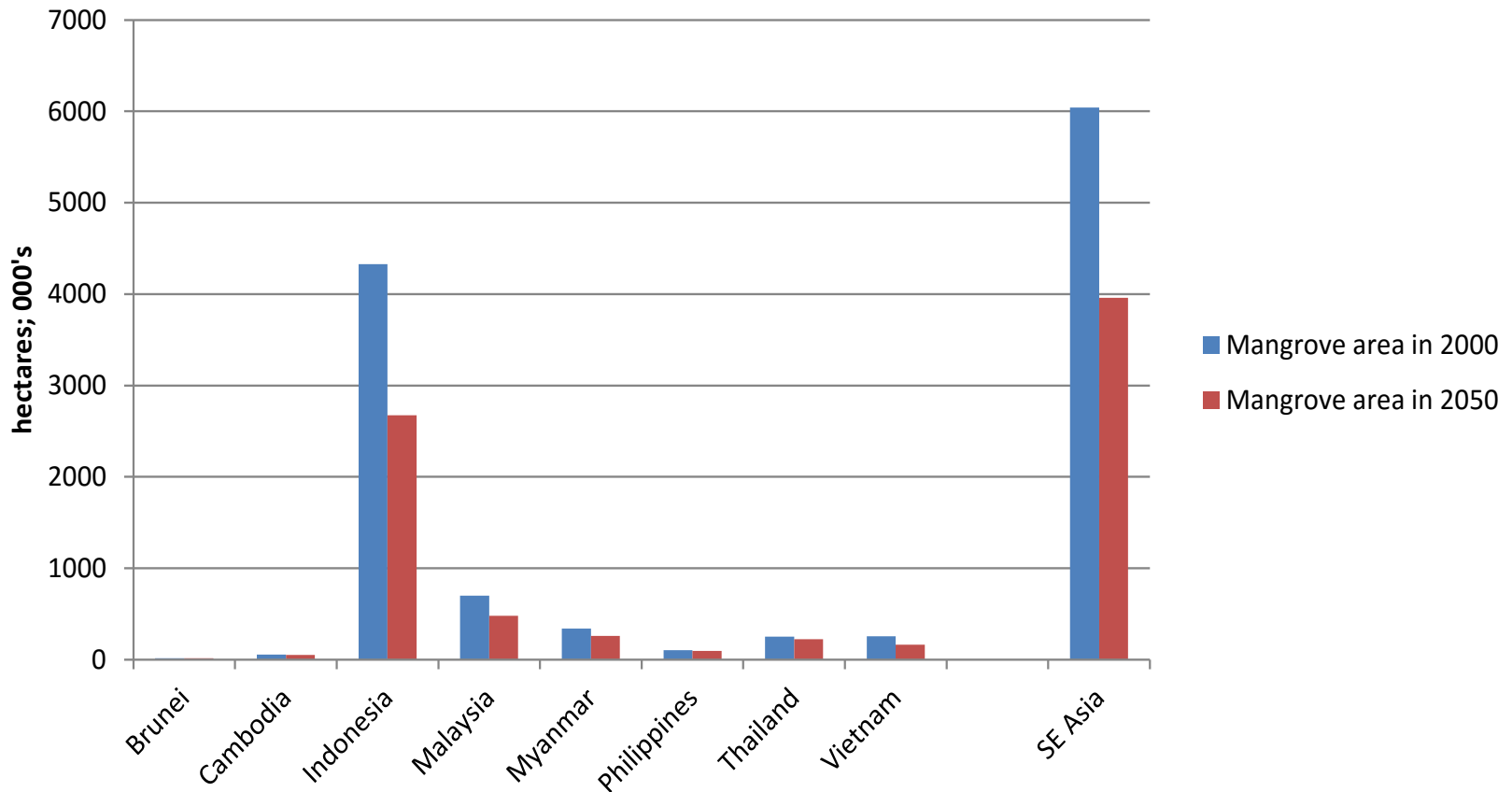
## Case study 1: Mangroves

- Ecosystem services:
  - Support to fisheries
  - Coastal protection
  - Materials and firewood
- Threats:
  - Pollution
  - Sea-level rise
  - Conversion to shrimp ponds



# ASEAN TEEB Scoping Study

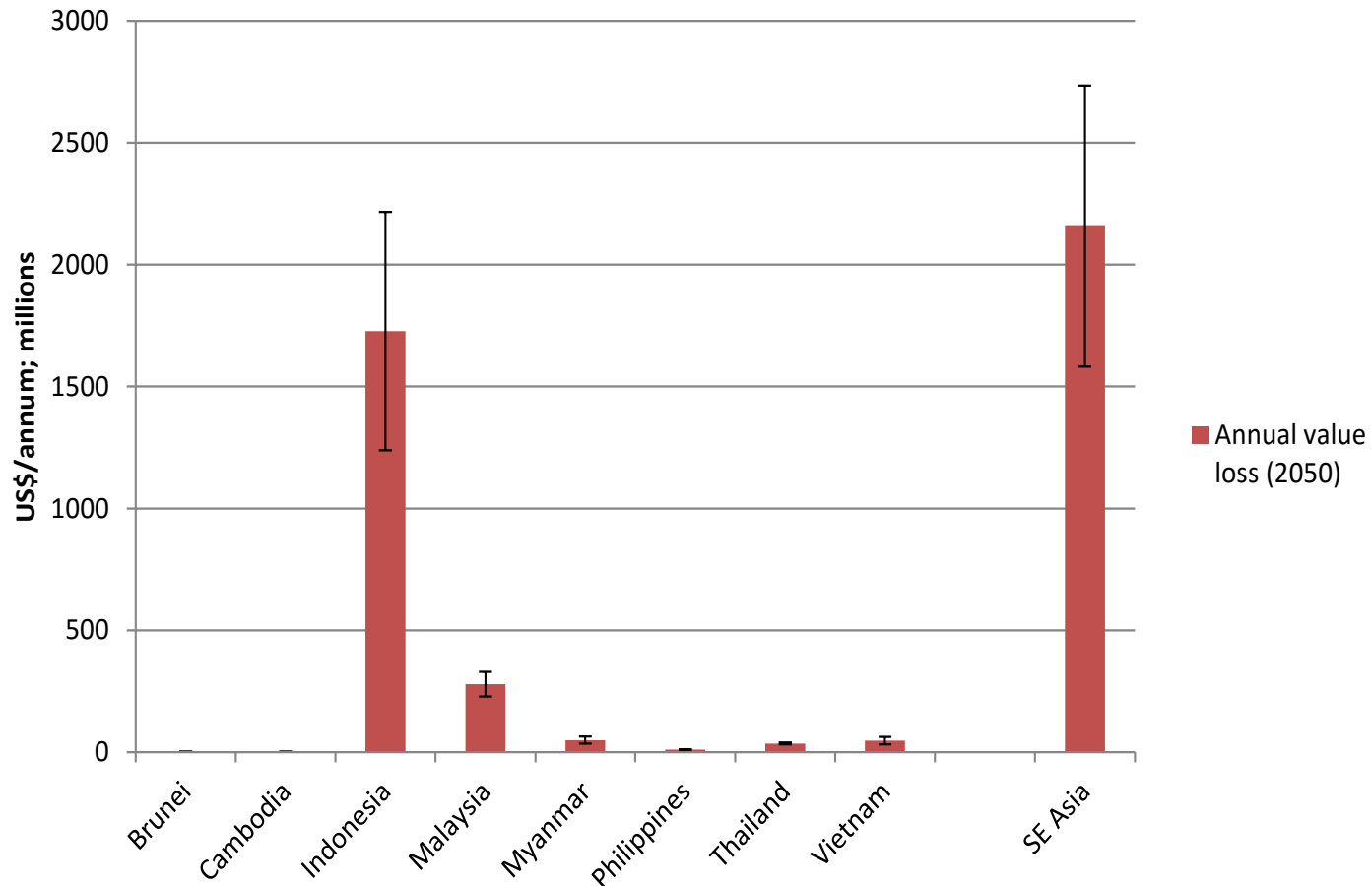
## Case study 1: Mangroves



**Southeast Asia is expected to lose one third of mangroves between 2000-2050**

# ASEAN TEEB Scoping Study

## Case study 1: Mangroves



**Value of lost mangroves in Southeast Asia is  
USD 2 billion (annual value in 2050)**

# ASEAN TEEB Scoping Study

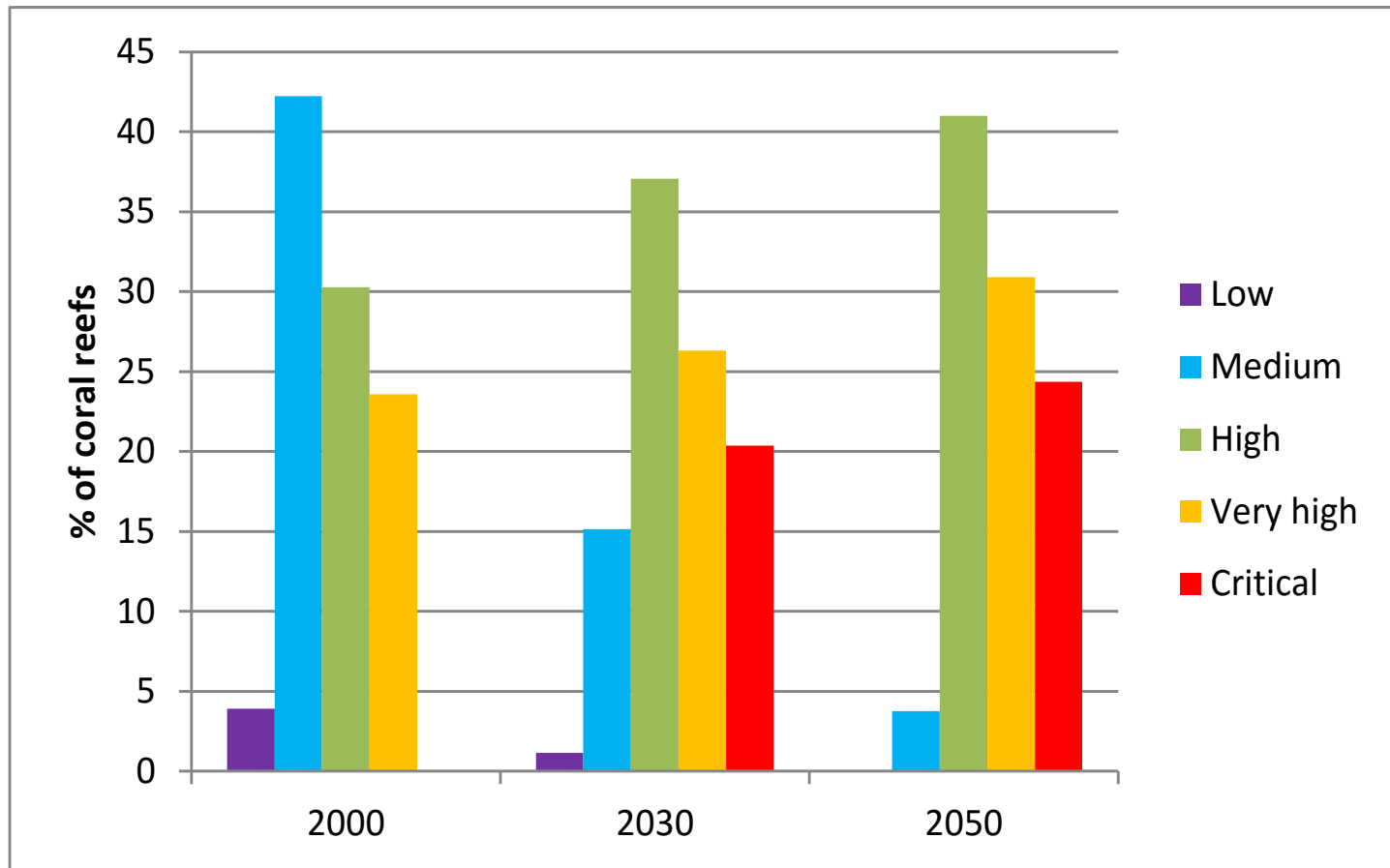
## Case study 2: Coral reefs

- Ecosystem services:
  - Recreation and tourism
  - Support to fisheries
  - Coastal protection
- Threats:
  - Sedimentation
  - Pollution
  - Overfishing
  - Climate change and ocean acidification



# ASEAN TEEB Scoping Study

## Case study 2: Coral reefs

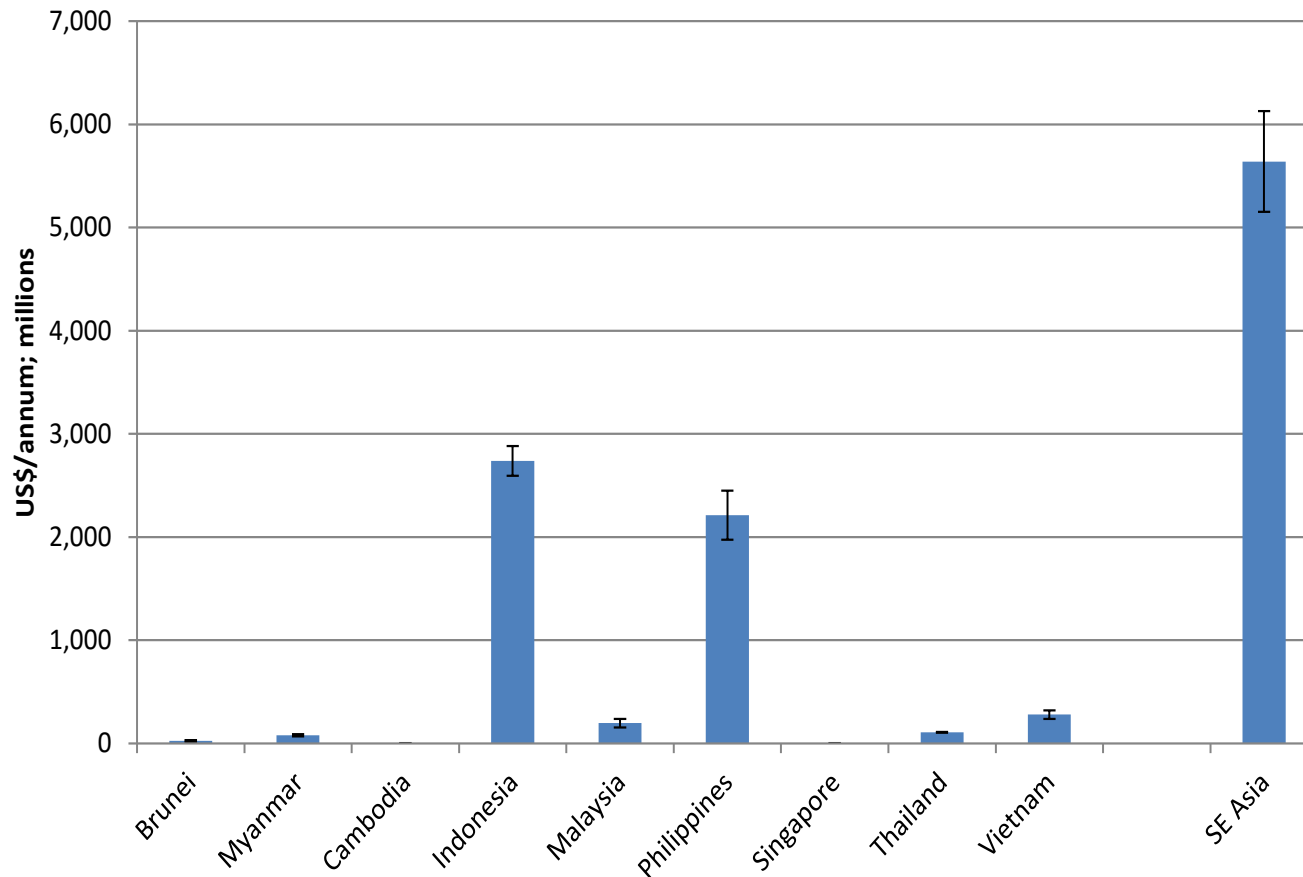


**Level of threat to coral reefs in Southeast Asia 2000, 2030, 2050. Source: Burke et al. (2011)**



# ASEAN TEEB Scoping Study

## Case study 2: Coral reefs



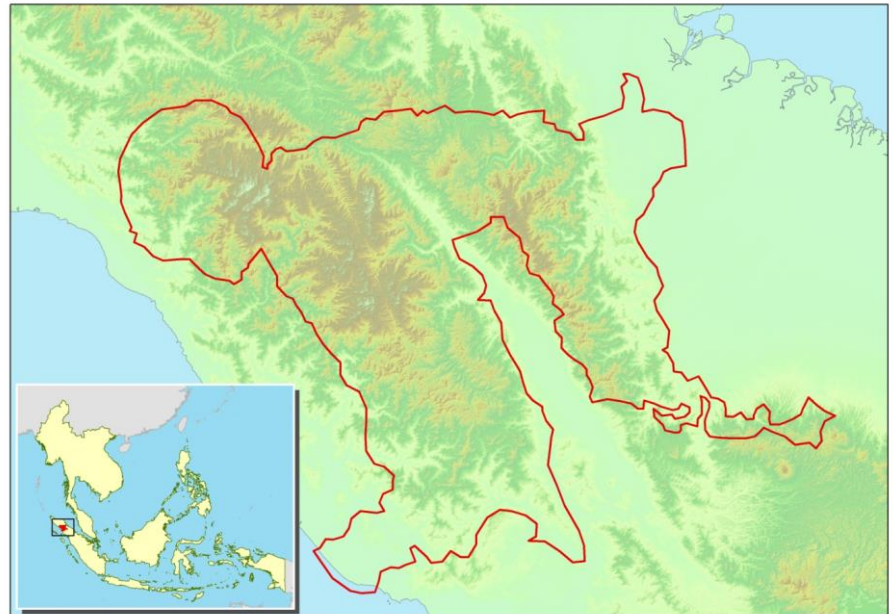
**Value of lost reef related fisheries in Southeast Asia  
is USD 5.6 billion (annual value in 2050)**



# ASEAN TEEB Scoping Study

## Case study 3: Leuser Forest Ecosystem

- Highlights the distribution of ecosystem service benefits across different stakeholders
- Trade-off between short term gains versus long term losses



# ASEAN TEEB Scoping Study

## Case study 3: Leuser Forest Ecosystem

### Ecosystem services:

- water supply
- fishery
- flood and drought prevention
- agriculture and plantations
- hydro-electricity
- tourism
- biodiversity
- carbon sequestration
- fire prevention
- non-timber forest products
- timber

# ASEAN TEEB Scoping Study

## Case study 3: Leuser Forest Ecosystem

### Threats:

- overextraction of rattan and damar resin
- wildlife poaching (collection of rhino horns)
- conversion of primary lowland forest into agricultural and oil plantations
- destructive fishing techniques (use of poison)

# ASEAN TEEB Scoping Study

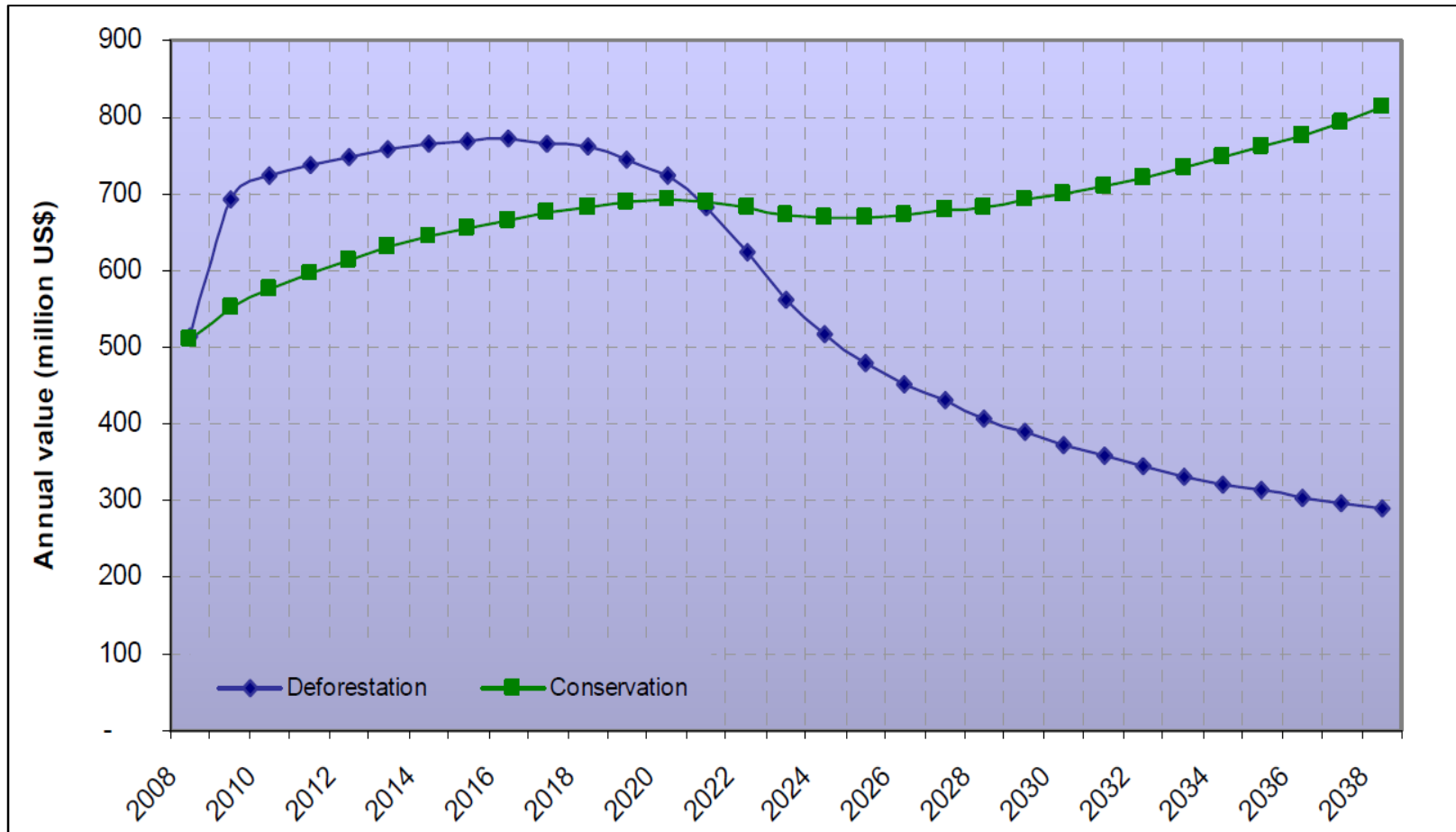
## Case study 3: Leuser Forest Ecosystem

Economic value of ecosystem services over a 30-year period (in USD million)

Ecosystem service	Deforestation scenario	Conservation scenario	Additional benefit of conservation
Water supply	1,059	2,487	1,428
Fishery	2,025	2,490	465
Flood prevention	1,622	1,860	238
Agriculture	3,512	3,991	479
Hydro-electricity	15	26	11
Tourism	25	139	114
Biodiversity	103	582	479
Carbon sequestration	0	1,217	1,217
Fire prevention	183	225	42
Non-timber forest products	161	391	230
Timber	3,308	0	-3,308
Total	12,013	13,408	1,395

# ASEAN TEEB Scoping Study

## Case study 3: Leuser Forest Ecosystem



**Short term gains do not compensate for long term losses**

# ASEAN TEEB Scoping Study

## Case study 4: Hon Mun Marine Protected Area



- Nha Trang Bay, Vietnam
- illustrates the impact of information on the economic values of ecosystem services
- Recommendation to introduce a user fee that is earmarked for use by the MPA has been adopted

# ASEAN TEEB Scoping Study

## Case study 4: Hon Mun Marine Protected Area

### Ecosystem services:

- commercial fisheries
- tourism/recreation
  - snorkelling, scuba diving, boating, jet skiing



[www.dive-n-log.com](http://www.dive-n-log.com)

### Threats:

- Increasing quantities of waste and pollution (due to large scale expansion of tourism developments)
- ineffective management of aquaculture production

# ASEAN TEEB Scoping Study

## Case study 4: Hon Mun Marine Protected Area

### Valuation of ecosystem services:

- annual monetary recreational value is approximately USD 17.90 million
- results of the valuation studies indicate that tourists derive large benefits from visiting the MPA
- provides a basis for introducing a visitor's fee



# ASEAN TEEB Scoping Study

## Case study 4: Hon Mun Marine Protected Area

### Current scenario:

- a visitor fee for the core zone of the MPA was introduced in December 2009
  - USD 2 for snorkelling and scuba diving
  - USD 0.5 for other activities (e.g. glass-bottom boats)
- revenue from the fee nominally belongs to the provincial treasury
  - but 100% is earmarked for use by the MPA
- in 2011, total revenue from the visitor fee is USD 66,000 (40% of the total annual MPA budget)

# ASEAN TEEB Scoping Study

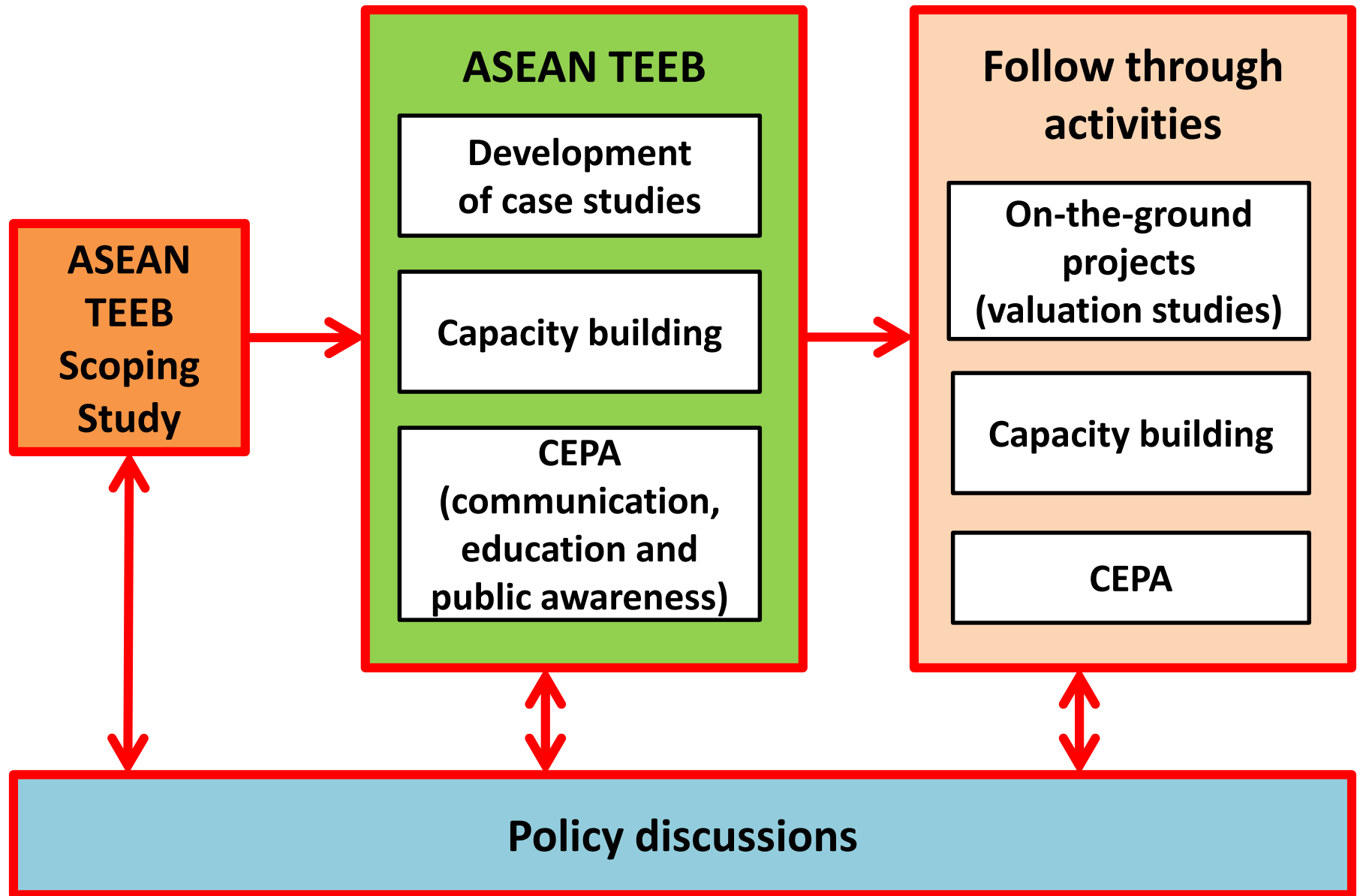
## Case studies for full ASEAN TEEB Study

- Consultation of environment officials, NGOs, and researchers in ASEAN Member States
- Policy relevant cases that would benefit from information on value of ecosystem services
- 18 potential case studies identified
  - Ecosystems: forests, wetlands, urban green space
  - Threats: mining, encroachment, urban expansion
  - Policy context: establish protected status, financing

# Next Steps

- maintain the momentum of TEEB mainstreaming and application
- initiate and encourage further development and implementation of TEEB and TEEB-related activities in the ASEAN region
- strengthen network of partners involved in TEEB promotion and implementation

# ASEAN TEEB Framework



# ASEAN TEEB

- Development of case studies (full ASEAN TEEB Study)
  - cost of policy inaction (COPI) analysis
  - documenting lessons learned
  - priority sites are ASEAN Heritage Parks
- Capacity building
  - trainings on TEEB and TEEB-related themes (for AHP Committee Members and Managers, among others)
  - technical support for national initiatives on TEEB
- Awareness raising
  - communication, education and public awareness (CEPA)
  - policy dialogues

# Follow through activities

- On-the-ground projects
  - conducting valuation studies
  - applying economic and financial instruments
  - building-up database of good case studies
- Continuous capacity building support
  - trainings, workshops, fora and meetings (for AHP Committee Members and Managers, among others)
  - technical assistance to ASEAN Member States
- Integration into CEPA programs
  - mainstreaming into national processes
  - media support

# Thank You!



[www.aseanbiodiversity.org](http://www.aseanbiodiversity.org)