

**Workshop 3.3: Blue Economy Development:
Where are we now? Where are we headed?**



THE EAST ASIAN SEAS CONGRESS 2015

Global Targets
Local Benefits

Setting the Sustainable Development Agenda
for the Seas of East Asia beyond 2015
16-21 November 2015 • Danang, Vietnam

Blue Carbon for Blue Growth: Managing the *Blue Carbon* Ecosystem for Sustainable Coastal Livelihood in Indonesia

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1. Introduction

Coastal Ecosystems – critical ecosystem services

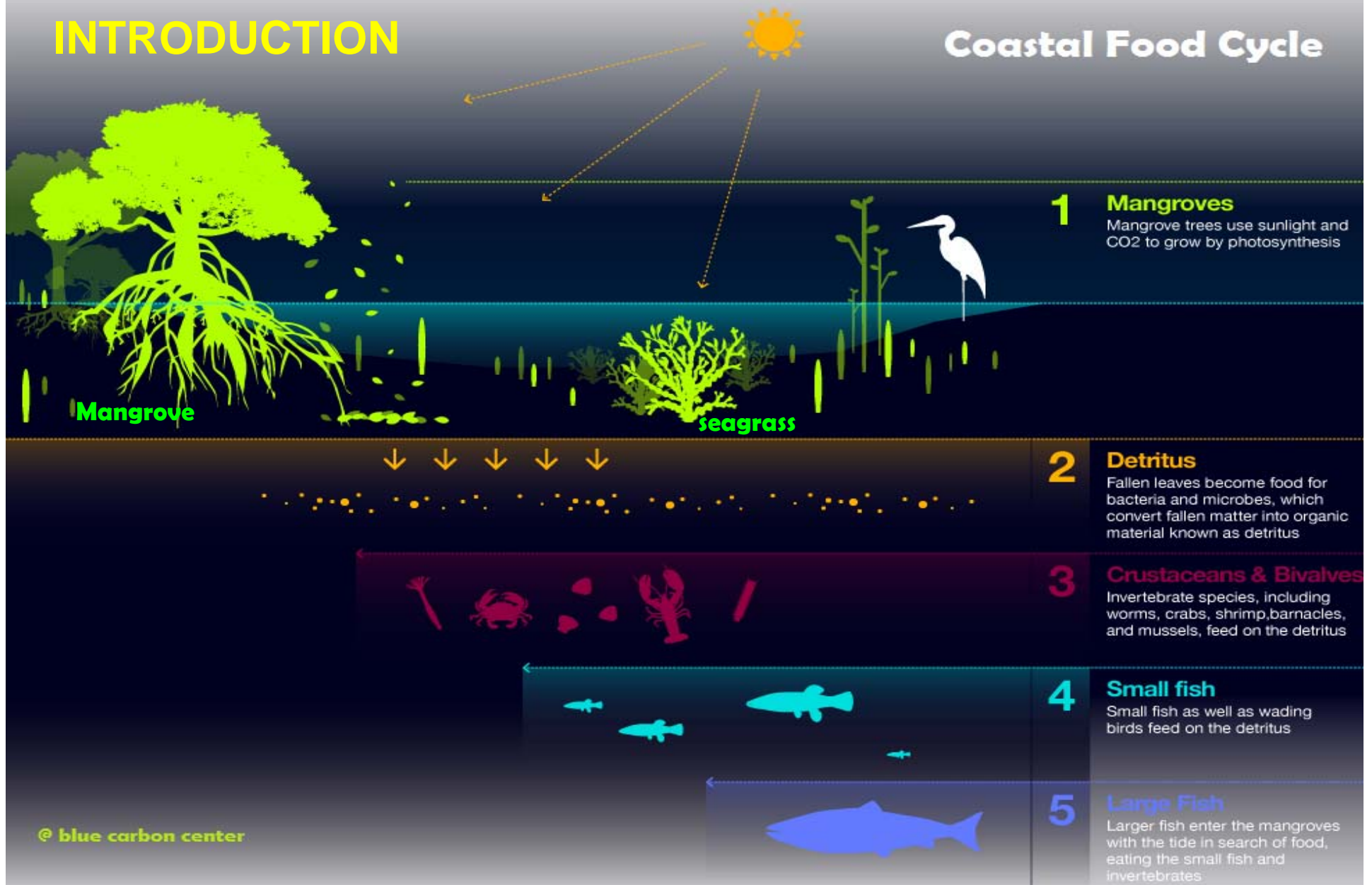
Fisheries
Coastal protection & erosion control
Coastal Water Quality
Livelihoods (tourism etc.)
Cultural value
Food
Biodiversity

Climate Change Mitigation
‘BLUE CARBON’



INTRODUCTION

Coastal Food Cycle



2. GOALS

Coastal-Marine "Blue Carbon" in Indonesian Waters

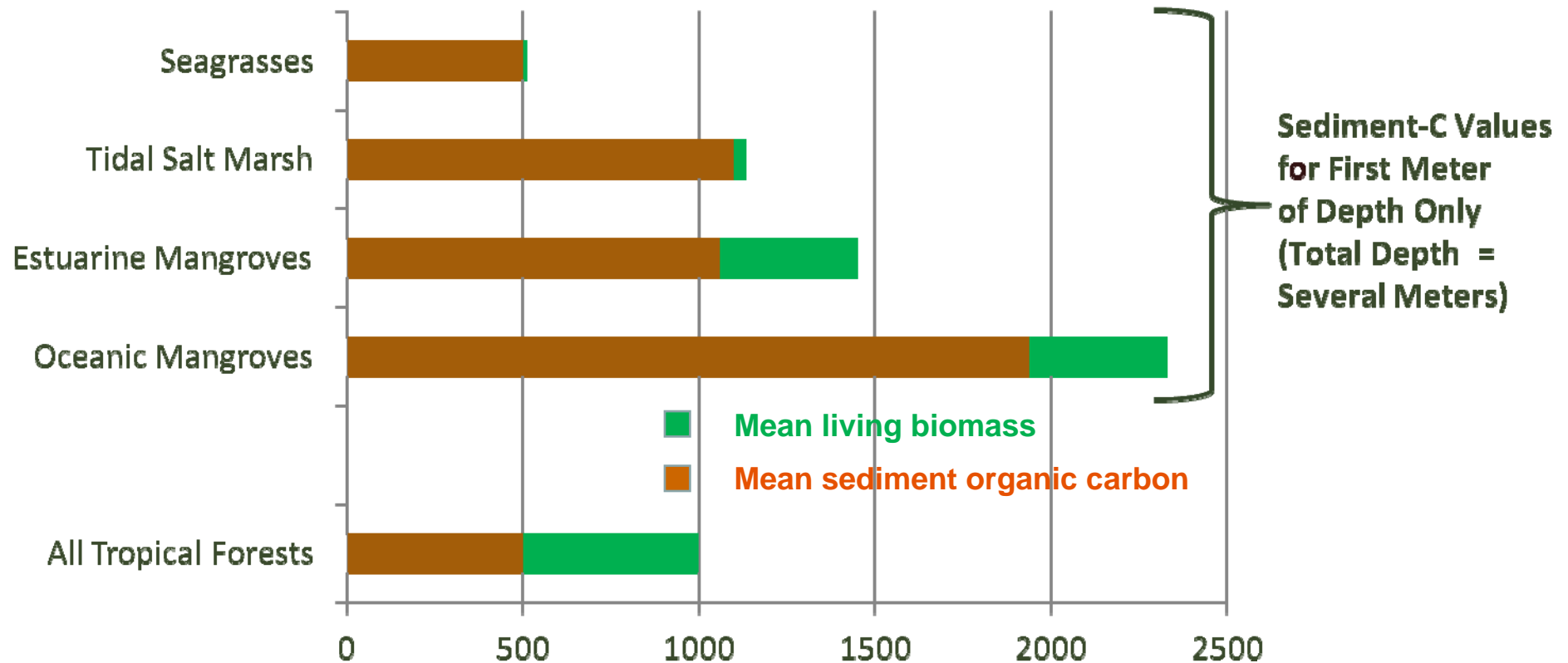


Scientific Findings

Coastal-Marine Blue Carbon Policy
Conservation-management-sustainable use BC ecosystems

Distribution of carbon in coastal ecosystems

tCO₂e per Hectare, Global Averages



5

Data summarized :

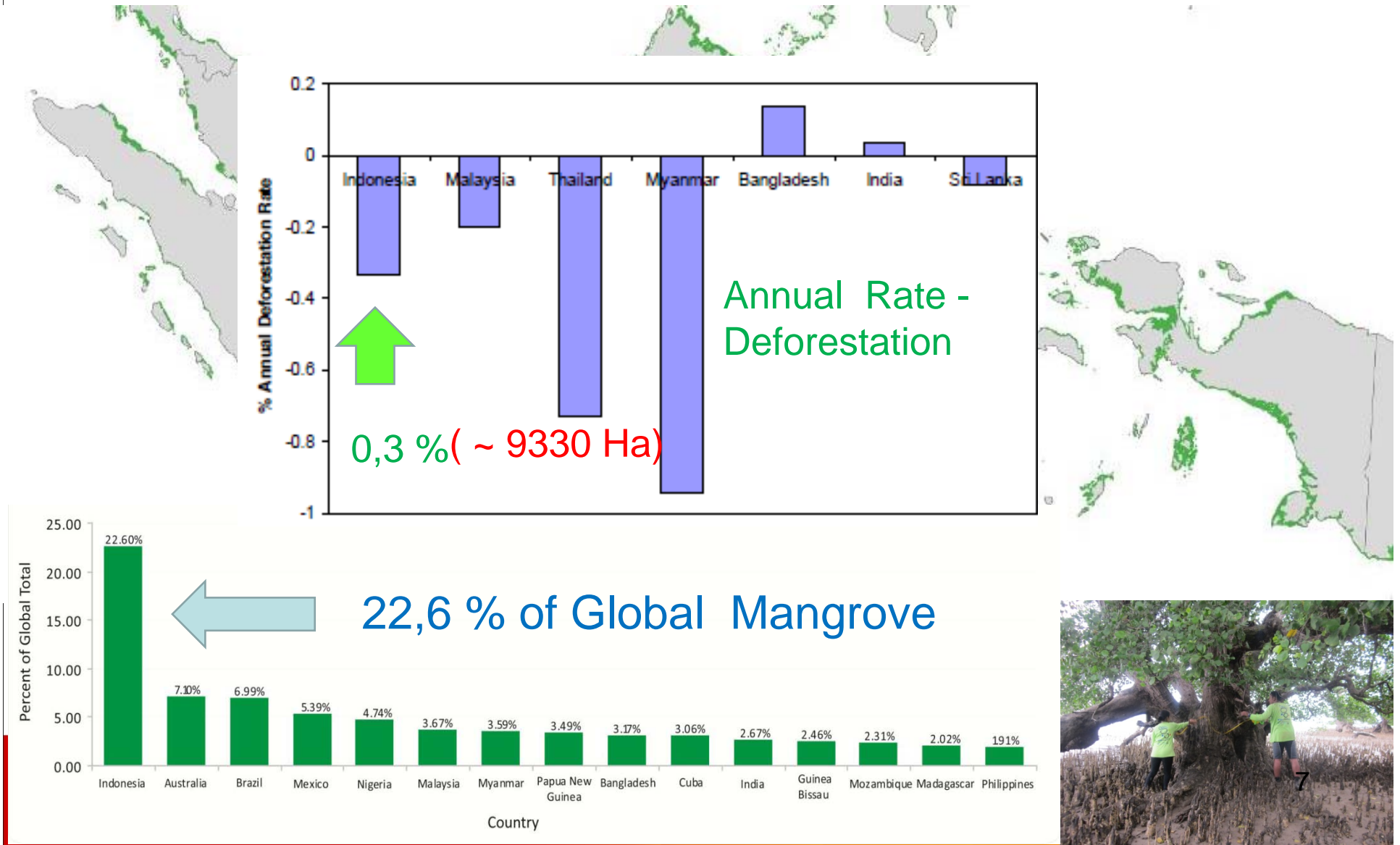
Crooks *et al.*, 2011; Murray *et al.*, 2011, Donato *et al.*, 2011, Fourqurean *et al.* 2013

Ecosystem	Carbon emissions (Pg* CO₂ yr⁻¹)	Economic cost (Billion US\$ yr⁻¹)
Tidal Marsh	0.02 – 0.24 (0.06)	0.64 – 9.7 (2.6)
Mangroves	0.09 – 0.45 (0.24)	3.6 – 18.5 (9.8)
Seagrass	0.05 – 0.33 (0.15)	1.9 – 13.7 (6.1)
Total	0.15 – 1.02 (0.45)	6.1 – 41.9 (18.5)
* = billion tonnes		

Pendleton et al. 2012, PLoS One

Mangrove Distribution in Indonesia

Total Area: 3.11 million Ha (The largest on Earth) by Giri *et al*, 2010

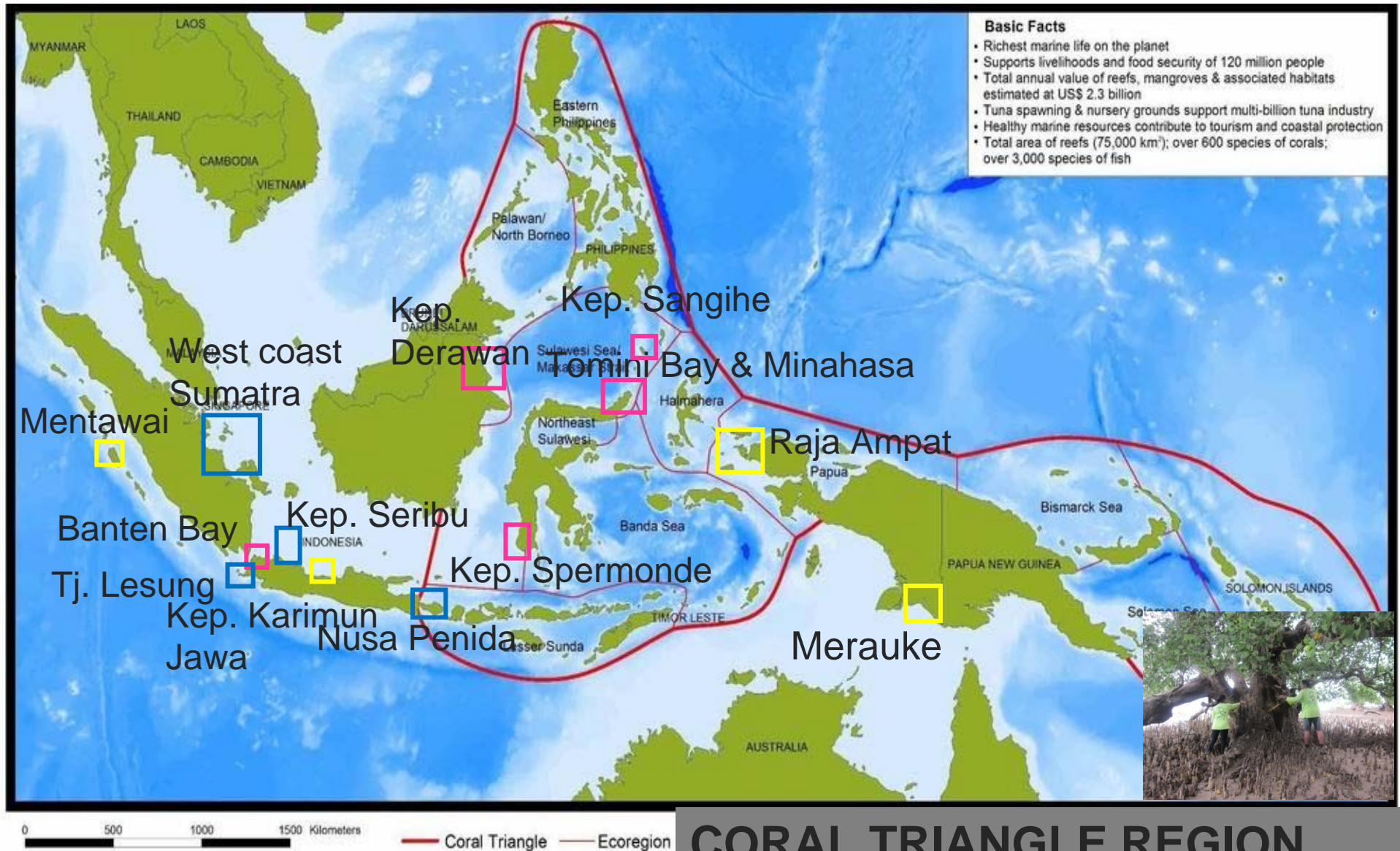


Study Sites for Blue Carbon (Mangrove & Seagrass)

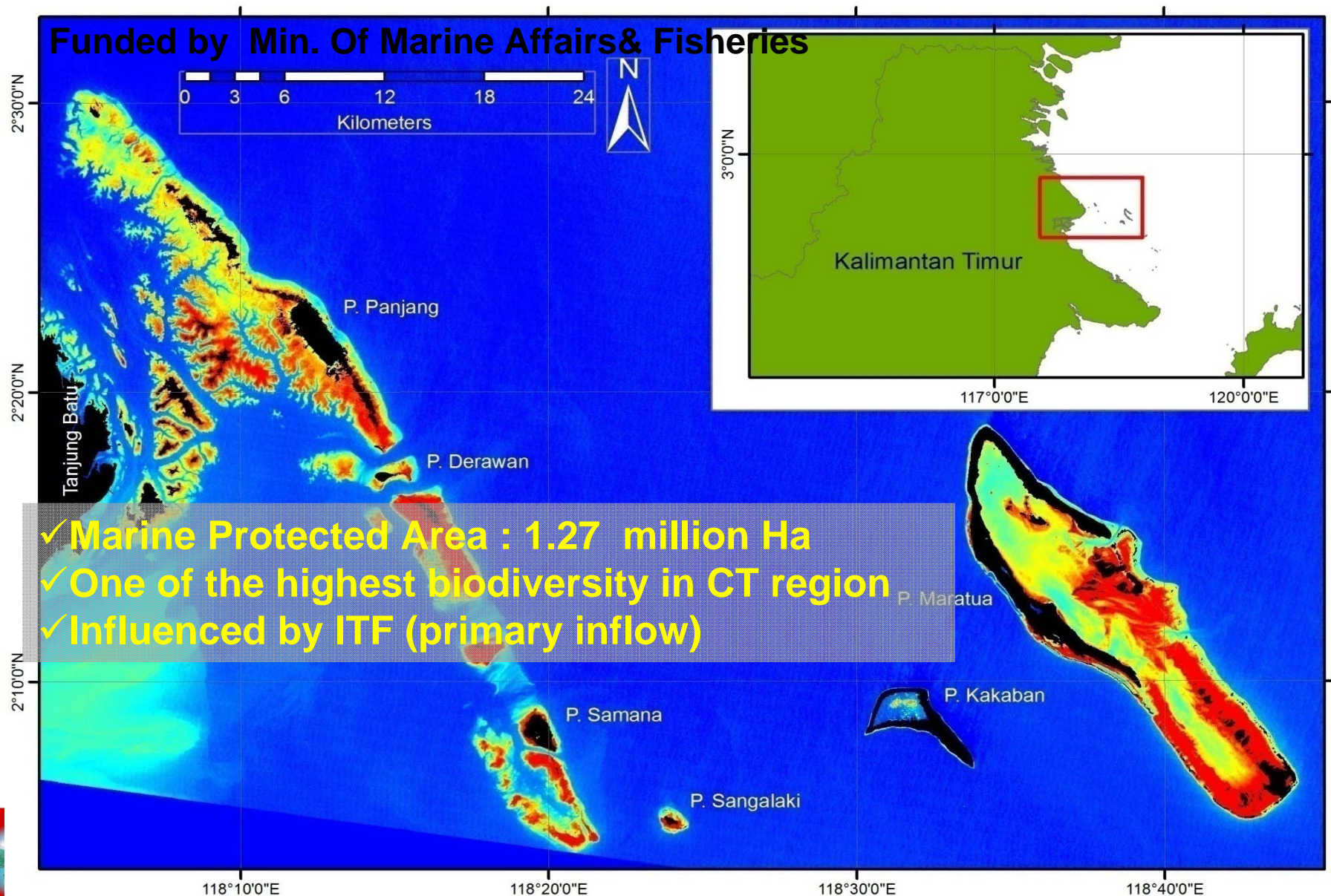
Finished

Ongoing

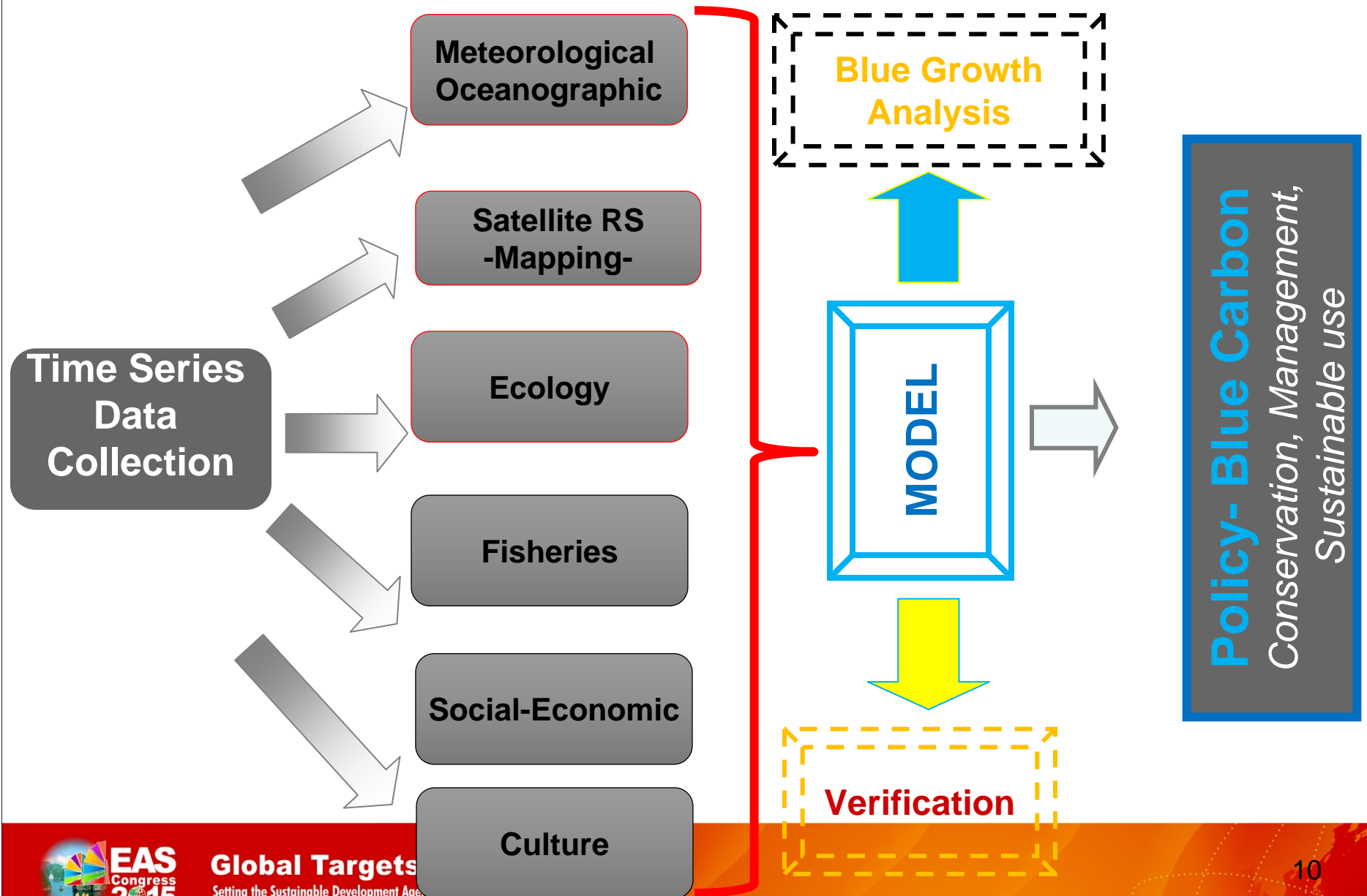
Future



4. Demostration Site for Integrated Blue Carbon in Berau-Derawan Islands, East Kalimantan (2012~)



Flowchart of Integrated Blue Carbon Programm



Activities for Insitu Observations –COASTAL BC

Kuadrant
transect

COASTAL BLUE CARBON

methods for measuring carbon stocks and emissions for use in mangroves, tidal salt marshes, and seagrass meadows

THE
BLUE
CARBON
INITIATIVE

CONSERVATION
INTERNATIONAL



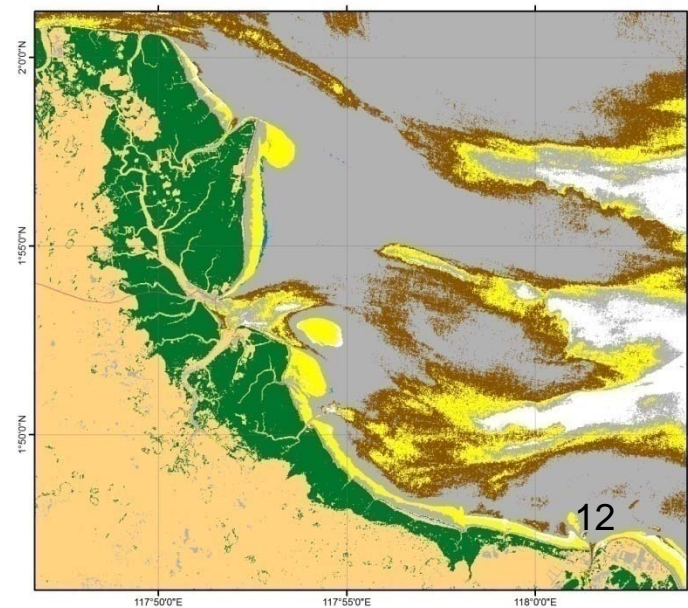
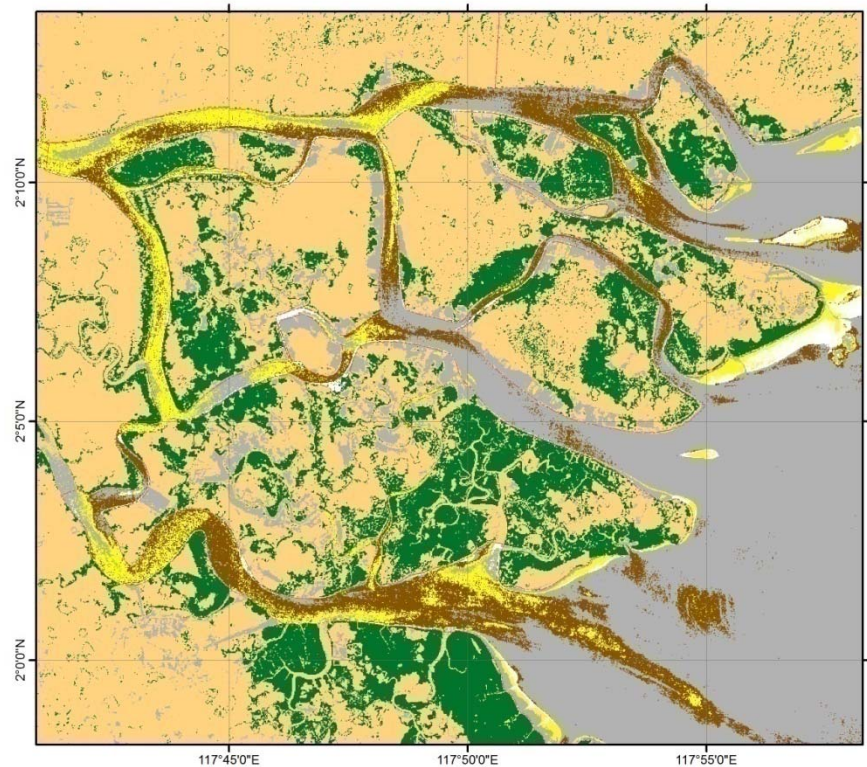
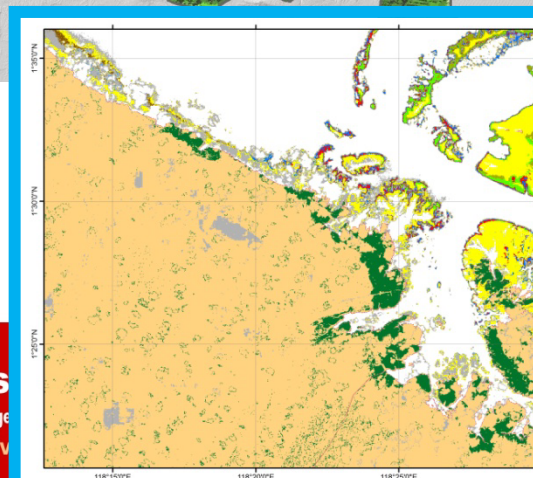
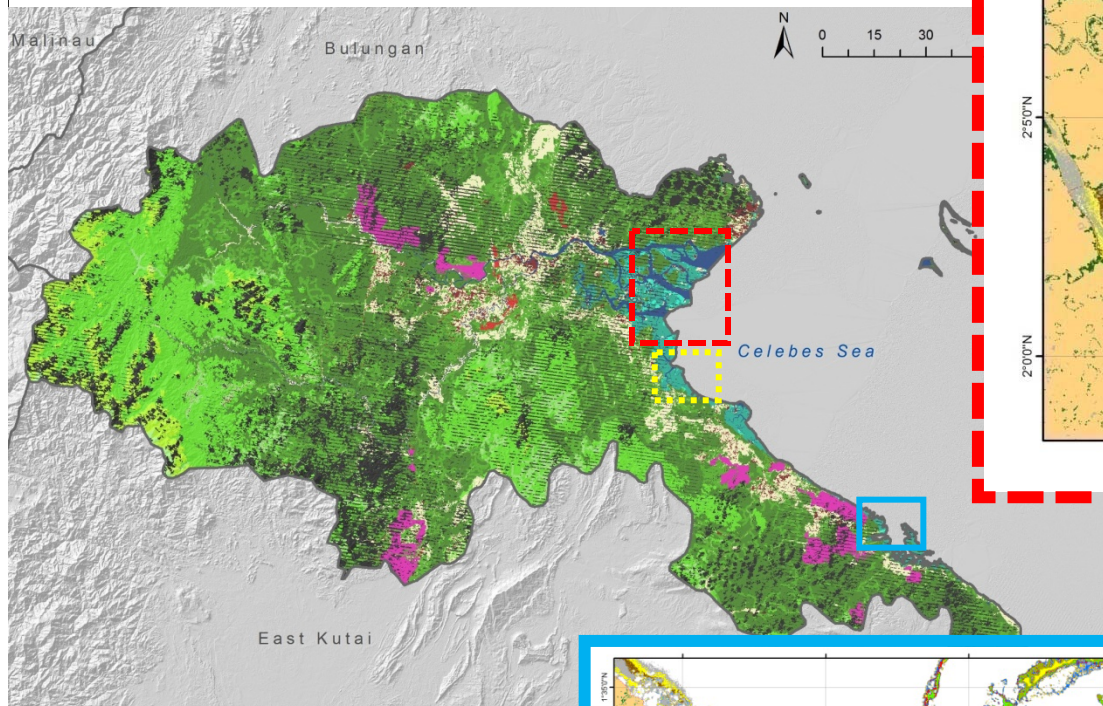
Sediment Core

Line transect

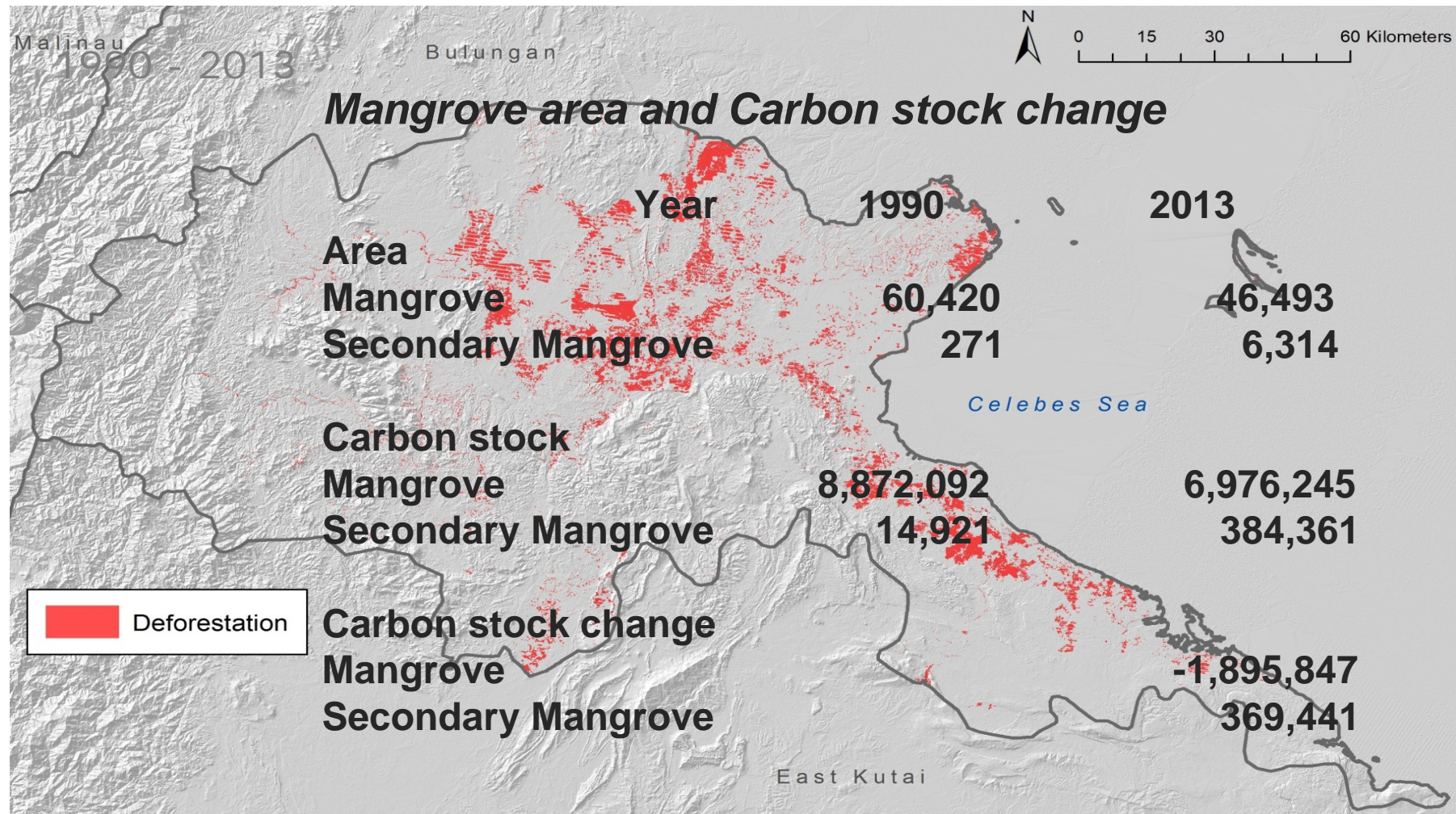
Measurement of
Biomass and DBH

Results:

Mangrove cover map in Berau

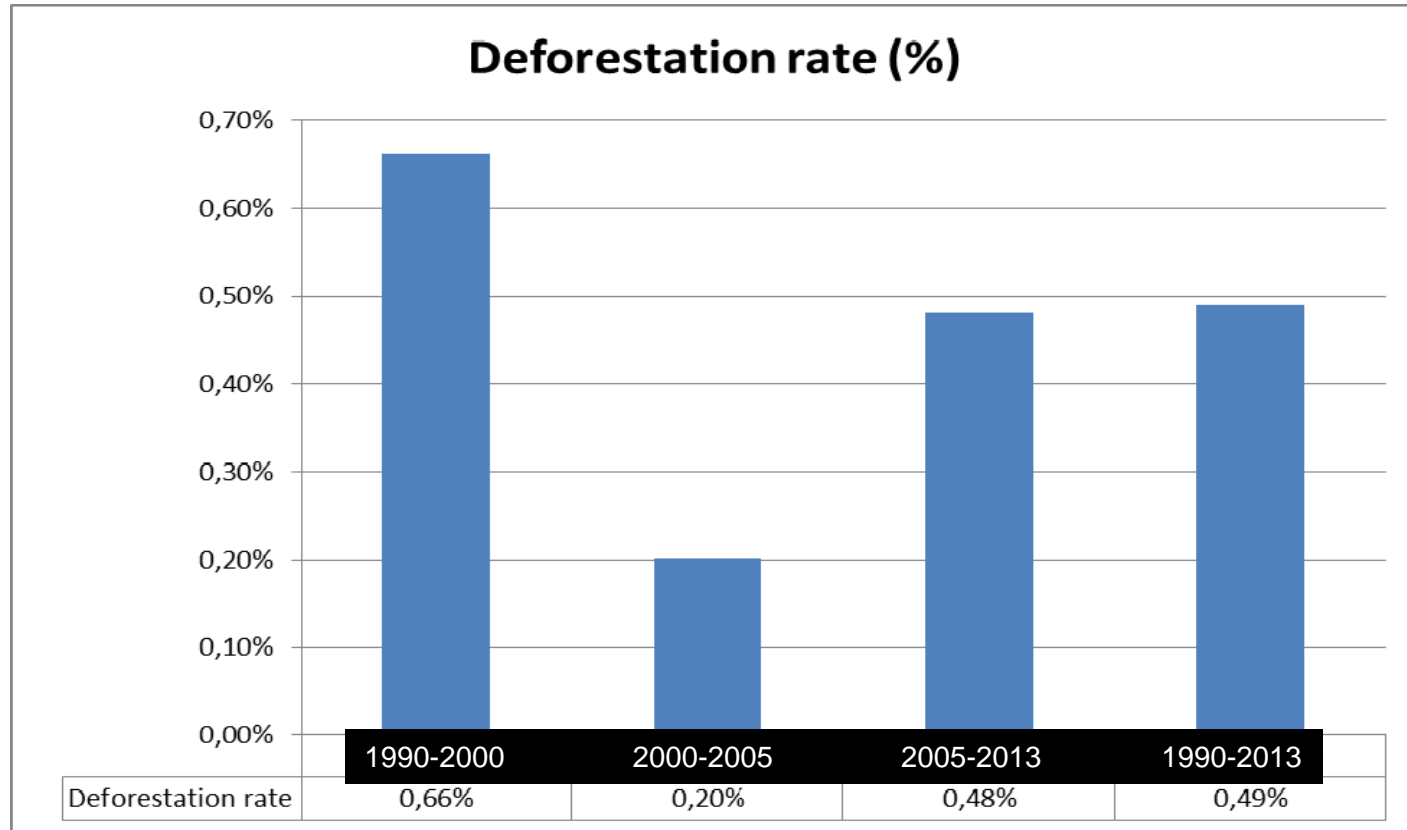


Results: Deforestation in Berau 1990 - 2013



Results:

Deforestation of Mangroves 1990 – 2013



	1990 - 2000	2000 - 2005	2005 - 2010	1990 - 2010
Grossloss	-6,62%	-1,01%	-2,41%	-9,79%

Mangrove lost/degraded : **13.927 Ha**

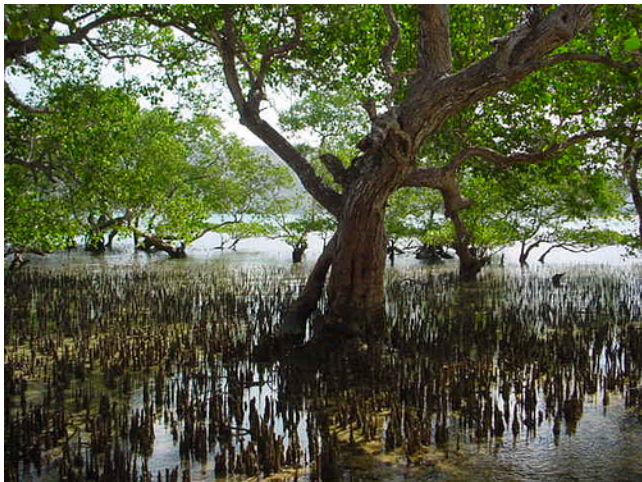
Carbon lost: 1.89 Mill tonnes C

What Are the Impacts ?

ECOLOGICAL IMPACT

Mangroves remove significant amounts of carbon from the atmosphere .

Mangroves provide shelter and food for numerous fish, birds, crustaceans, and other wildlife.



HUMAN HEALTH IMPACT

Mangroves protect human lives by absorbing the impacts of waves, tsunamis, storm surges, and floods. Mangroves can absorb 70 to 90 % of the energy of a normal wave (Miththapala, 2008).



ECONOMIC IMPACT

Mangroves play a critical role in supporting commercial fisheries, improving water quality, and providing fuel and raw materials.

The global value of the goods and services mangroves provide to humans has been estimated to be as much as \$193,843 per hectare (Costanza et al., 2014). Berau has lost about \$ 2,7 billions

5. The Ways Forward

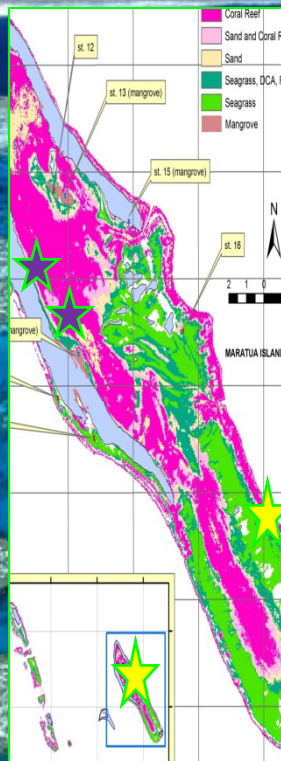
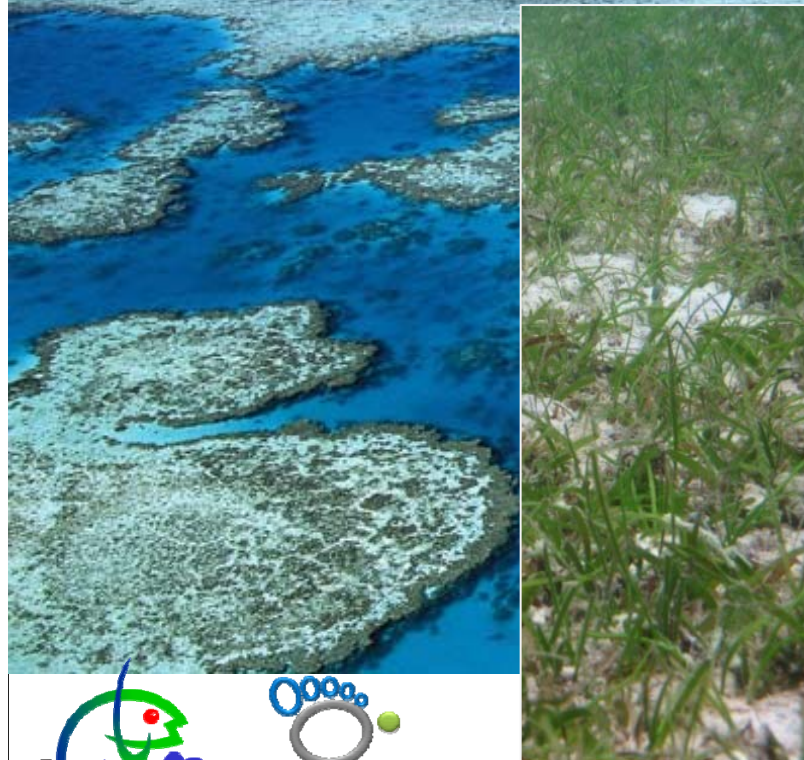
❖ Indonesia: *National Priority for Blue Carbon Program*

1. Develop Indonesia National Science Plan of Action on Blue Carbon
2. Engaged in National and International BC programs
3. Expanding science program
4. Growing interest in integrating Blue Carbon into on-the-ground sustainable use, conservation and management
5. Assessment fisheries and blue carbon value (inc CDM)
6. Community mangrove & seagrass restoration
7. Capacity building in sustainable fisheries and alternative livelihoods



The future is blue!

Thank You....!



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