Experience and lessons learnt from

Green Coast project (Tsunami 2004 response in Indonesia) **and Eco-DRR program**

Iwan Tri Cahyo Wibisono
Program coordinator
Wetlands Conservation and Restoration

World BOSAI Forum
IDRC 2017 in SENDAI

28 November 2017

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Tsunami 2004 in Indonesia

Nanggroe Aceh Darussalam province and Nias Island

- ***More than 130.000 people dead and 37.000 remain missing.***
- ***The survivors lost almost everything: family, houses and livelihoods.***
- ***Approximately 4,717 coastal fishing boats lost, 20.000 ha fish ponds were destroyed or out of action***
- ***60,000 farmers were displaced***
- ***Over 60,000 ha agricultural land damaged***
- ***100,000 small business persons have lost their livelihoods.***
- ***Furthermore, the environment is profoundly altered.*** ***(A joint report of the BRR and International Partners, December2005: ACEH AND NIAS ONE YEAR AFTER THE TSUNAMI; The Recovery Effort and Way Forward)***

26 December 2004, 07:58 WIB
9.1 richter scale
10 m wave height

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Green Coast

For **nature** and **people**
after the tsunami

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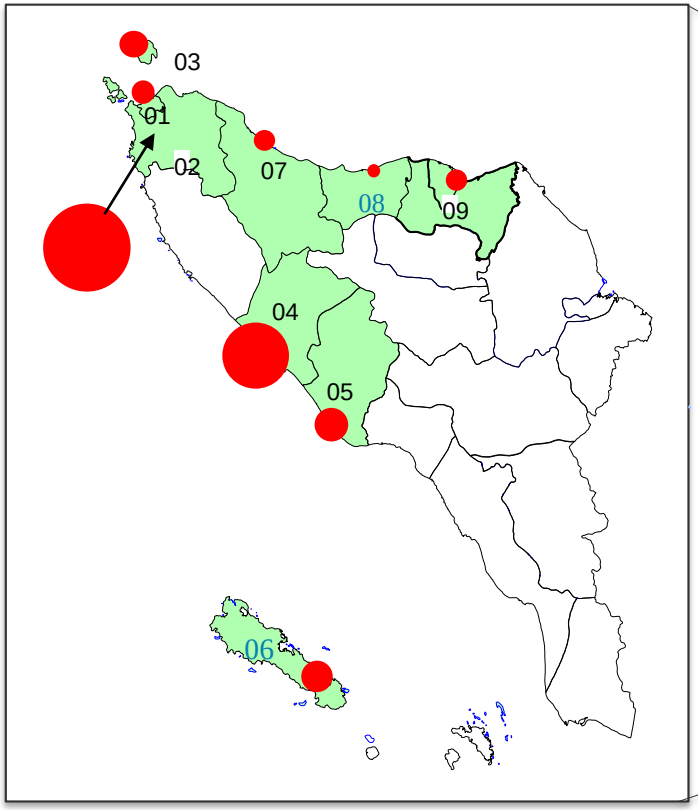
WWF for a living planet

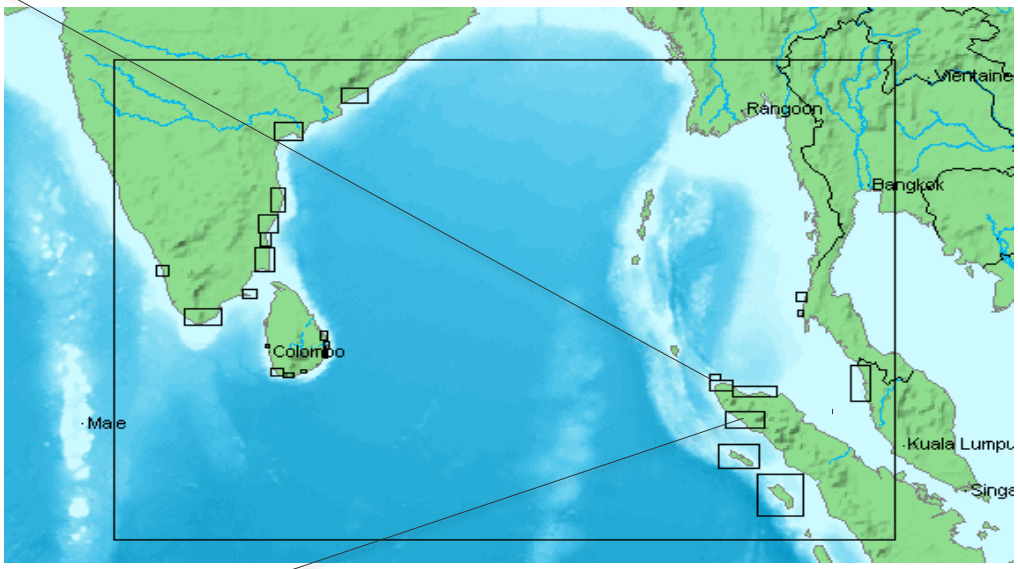
B T H ENDs environment and development service for ngo's

IUCN The World Conservation Union

Oxfam

GC INDONESIA





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Scientific Assessment

to guide Sustainable Coastal Recovery


Labuhan Bakti

- wetlands ecology
- vegetation and the potential for rehabilitation
- soil and agricultural development
- fisheries
- biodiversity
- social economic development


Onolimbu


Lahewa

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Key recommendations from assessment

- The need to support communities to revive their **livelihood**

  >>>Project identified potential/prospective economic activities
- The need to **rehabilitate environment** damaged bu Tsunami (Mangrove, beach forest, Coral reef)

  >>>Project identified potential areas for rehabilitation
- **Advocacy and policy intervention** for green belt establishment and DRR strategy

Green belt
Natural Protection System

Build back better
With Biorights

Economic improvement

Community will have capacity to prepare, adapt, response

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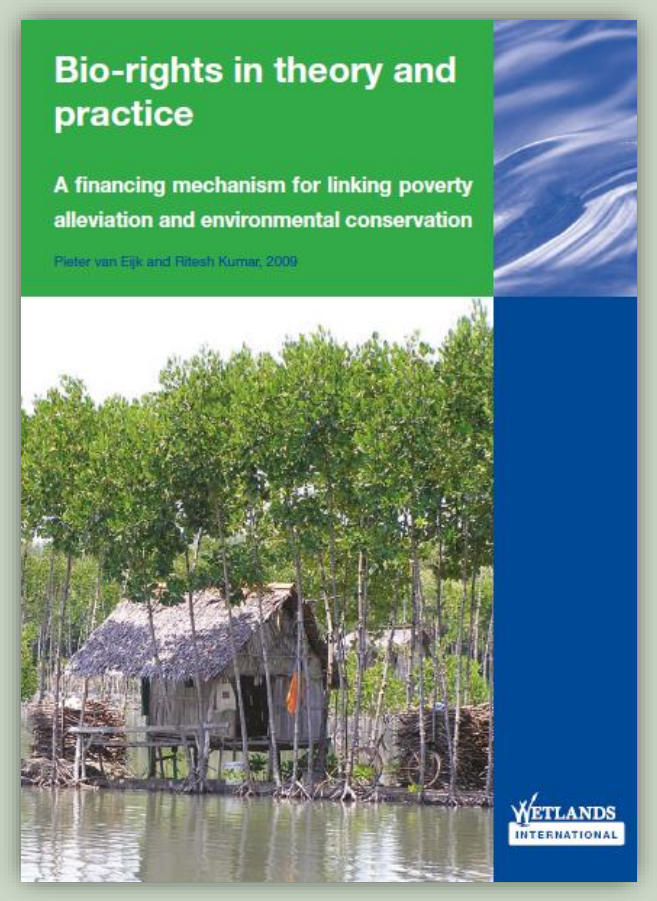
Bio-rights

Linking **environment rehabilitation/conservation** with **livelihood improvement** through **conditional micro credit**



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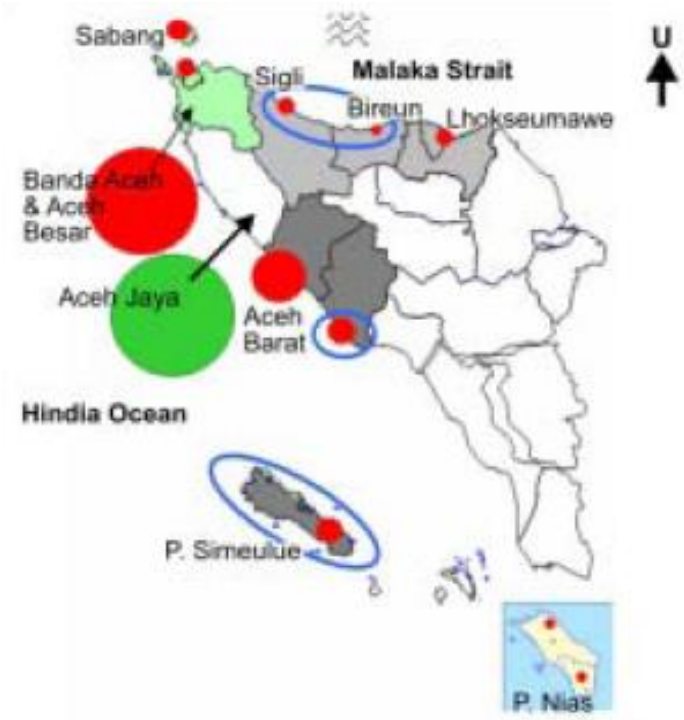
Implementation (2005-2008)

73
communities based coastal and livelihood rehabilitation

2005–2007

54
communities based coastal and livelihood rehabilitation

2007–2008



19
communities based coastal and livelihood rehabilitation

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Rehabilitation of the tsunami affected Area through environmental awareness and Community development at Kajhu Village Sub District of Baitussalam District of Aceh Besar

Local partner : Yayasan Ekosistem Lahan Basah (LEBAH)

>>Restoration activities:

Planting Mangrove: 30.000 seedling

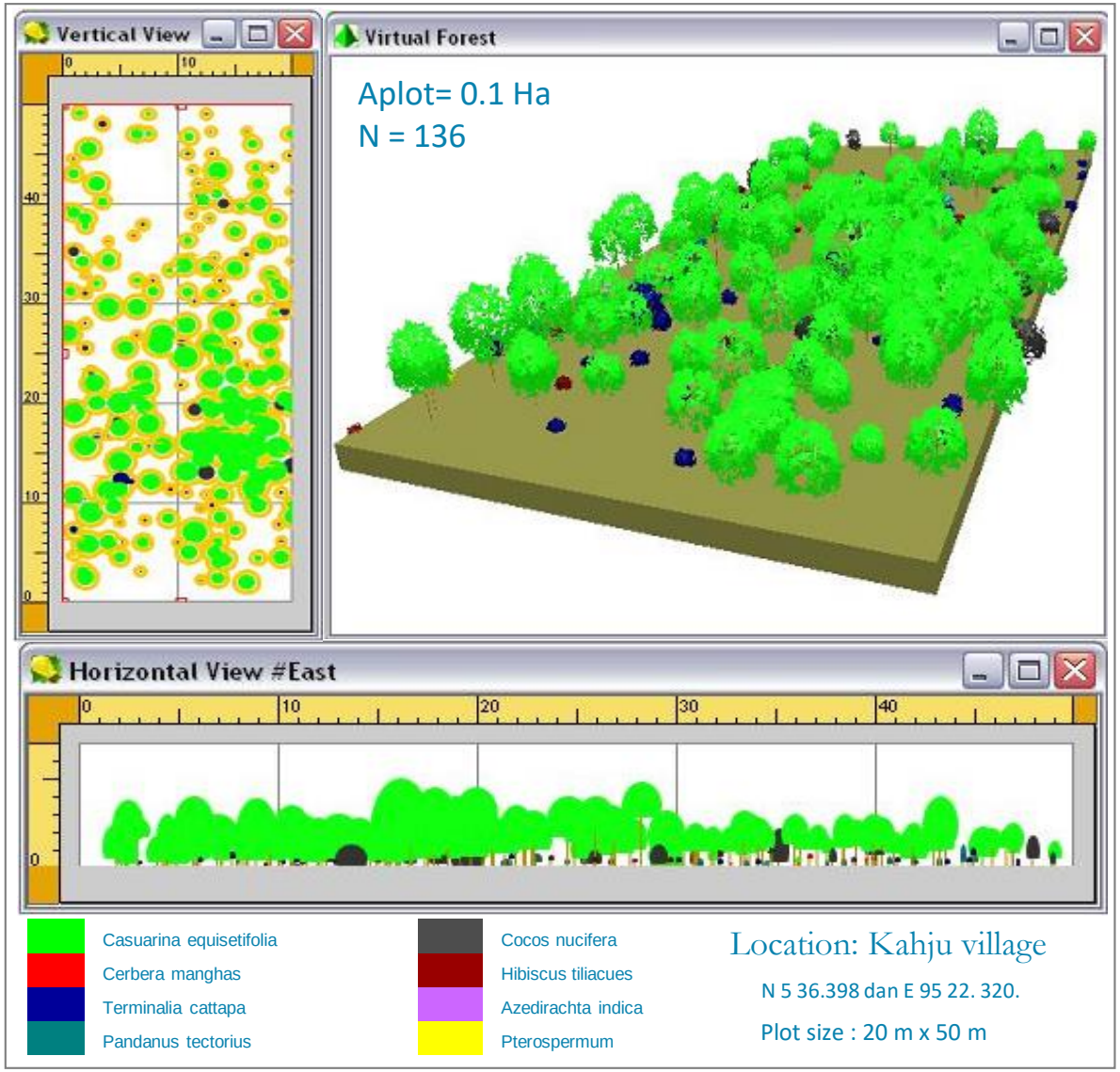
Planting Coastal veg: 7500 seedlings

>>Livelihood activity:

Boat procurement to support fishing activity

1.5 Years after planting

@ 3D view Powered by SLIM - ICRAF



C stock =
11 .2 tC/Ha

GHG removal=
41.1 tCO2-e/Ha

Within 1.5 yrs

C pool: AGB, BGB

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SIlvofishery Practices in abandoned Ponds
Lam Ujung Village, Aceh Besar District

Coastal rehabilitation:

10,000 mangrove seedling have been planted on the area of 15 ha (abandoned shrimp pond)

Economic activities:

Crabs farming, chicken husbandry

Local partner:

Kelompok Masyarakat Dusun Junglong Desa Lam Ujung Kecamatan Baitusasalam

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SABANG Island

ACC foundation

Protecting coral reef by Mooring buoy

Replanting coral reef

PUGAR foundation, Sabang

Protection of coastal area to reduce further degradation

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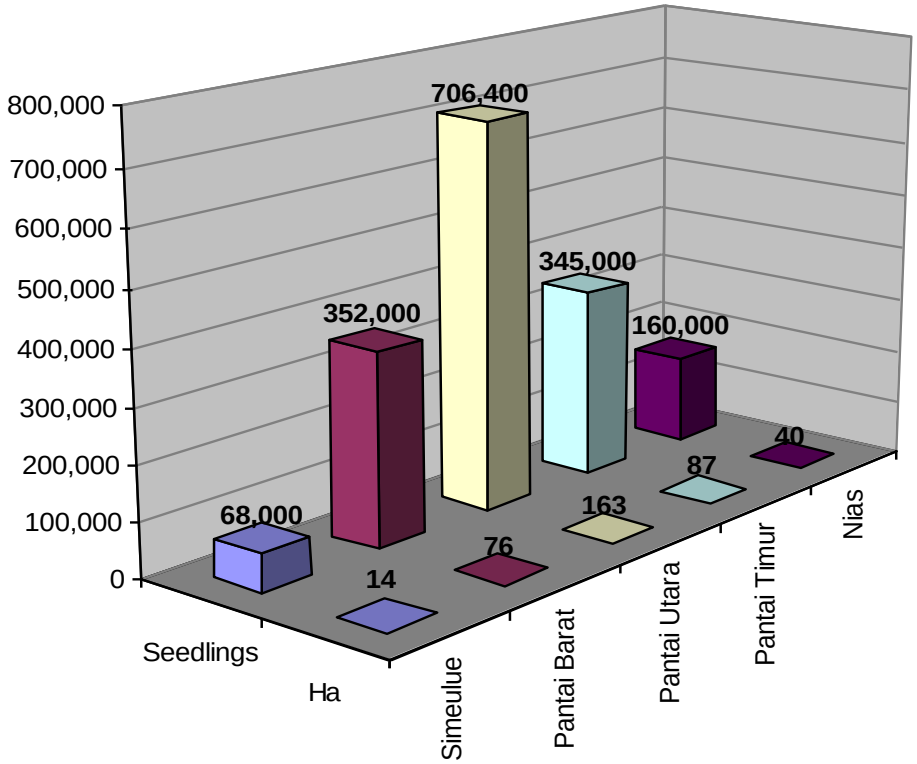
Mangrove rehabilitation (2005-2008) – RECAP

1,631,400 seedlings

380 Ha

6 species

- *Rhizophora mucronata*
- *Rhizophora apiculata*
- *Rhizophora stylosa*
- *Avicennia marina*
- *Bruguiera gymnorrhizza*
- *Ceriops cengal*

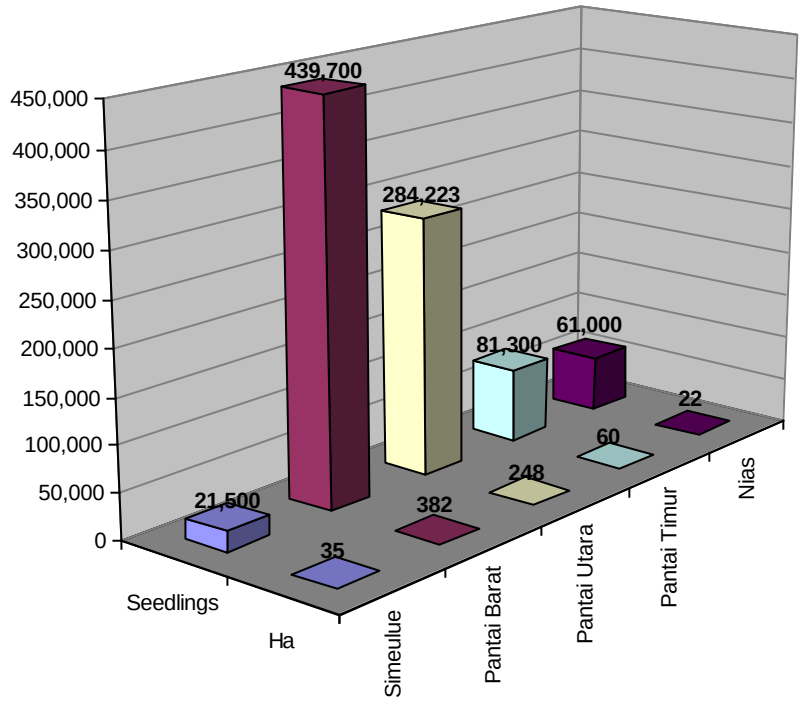


Survival Rate: 74.23%

Sandy beach coast rehabilitation- RECAP

887,723 seedlings

747 Ha

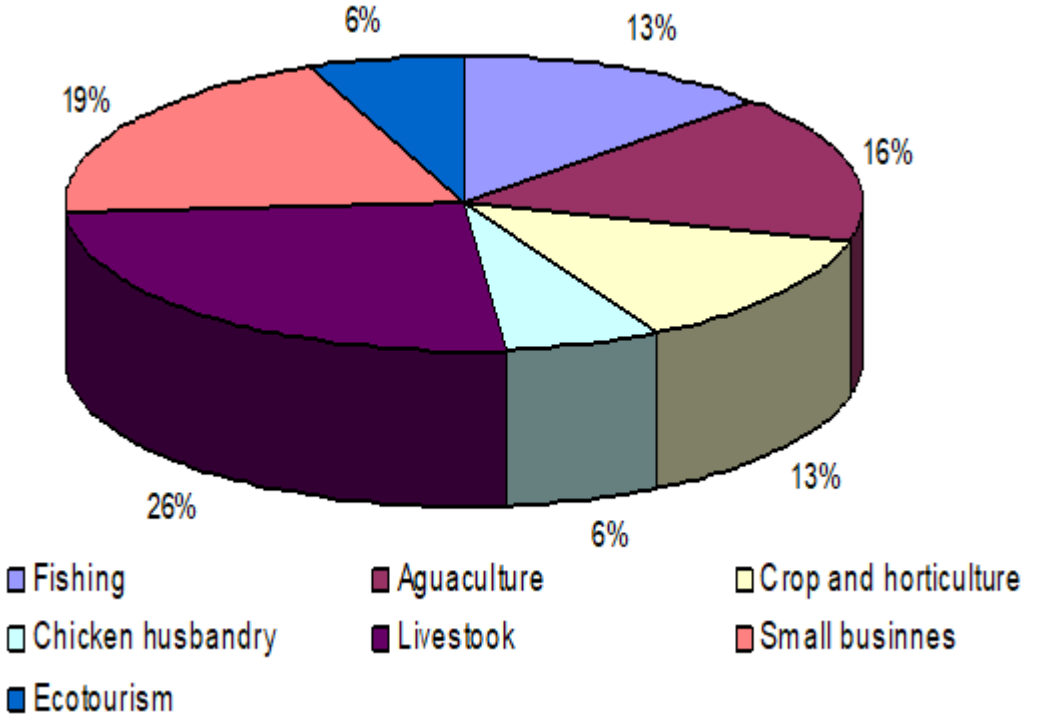


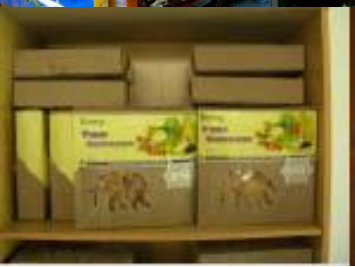
Survival Rate 73.82%

22 species

1	*Casuarina equisetifolia*	12	*Eusideroxylon zwageri*
2	*Cocos nucifera*	13	*Ficus spp*
3	*Terminalia catappa*	14	*Calophyllum inophylum*
4	*Carbera menghas*	15	*Areca catechu*
5	*Azaracta indica*	16	*Tamarindus indica*
6	*Pandanus tectorius*	17	*Eugina cumini*
7	*Hibiscus tiliaceus*	18	*Bambusa sp*
8	*Arthocarpus heterophyllus*	19	*Lannea caromondalica*
9	*Ficus retusa*	20	*Nephelium lapaceum*
10	*Heriteria littoralis*	21	*Mangifera sp*
11	*Baringtonia asiatica*	22	*Theobroma cacao*

Livelihood activities





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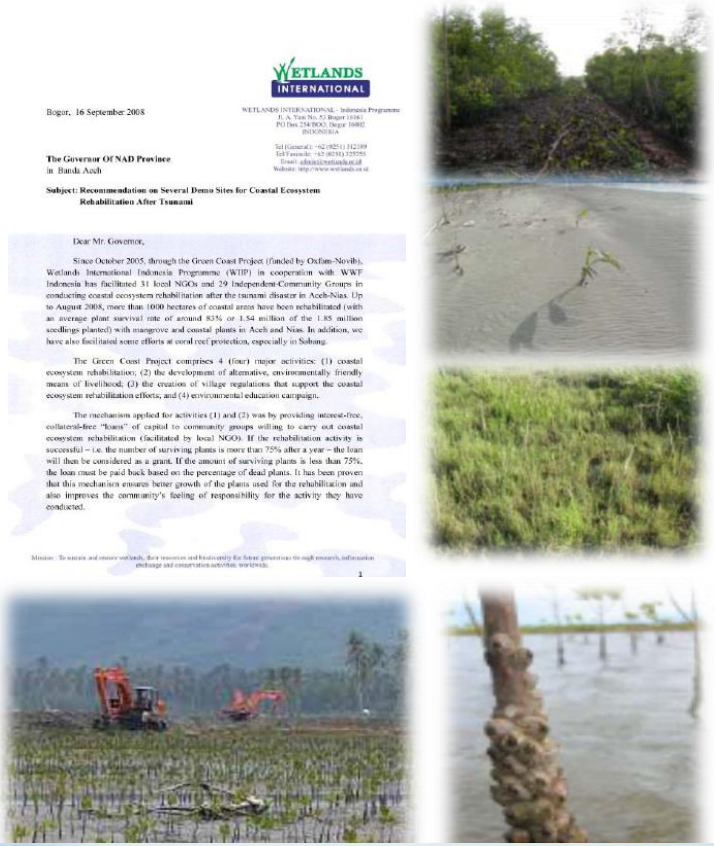
Lessons we learnt.....



WETLANDS INTERNATIONAL

Bogor, 16 September 2008

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The Governor Of NAD Province
in Banda Aceh

Subject: Recommendation on Several Demo Sites for Coastal Ecosystem Rehabilitation After Tsunami

Dear Mr. Governor,

Since October 2005, through the Green Coast Project (funded by Oxfam-Novib), Wetlands International Indonesia Programme (WIIP) in cooperation with WWF Indonesia has facilitated 31 local NGOs and 29 Independent-Community Groups in conducting coastal ecosystem rehabilitation after the tsunami disaster in Aceh-Nias. Up to August 2008, more than 1000 hectares of coastal areas have been rehabilitated (with an average plant survival rate of around 81% or 1.54 million of the 1.85 million seedlings planted) with mangrove and coastal plants in Aceh and Nias. In addition, we have also facilitated some efforts at coral reef protection, especially in Sabang.

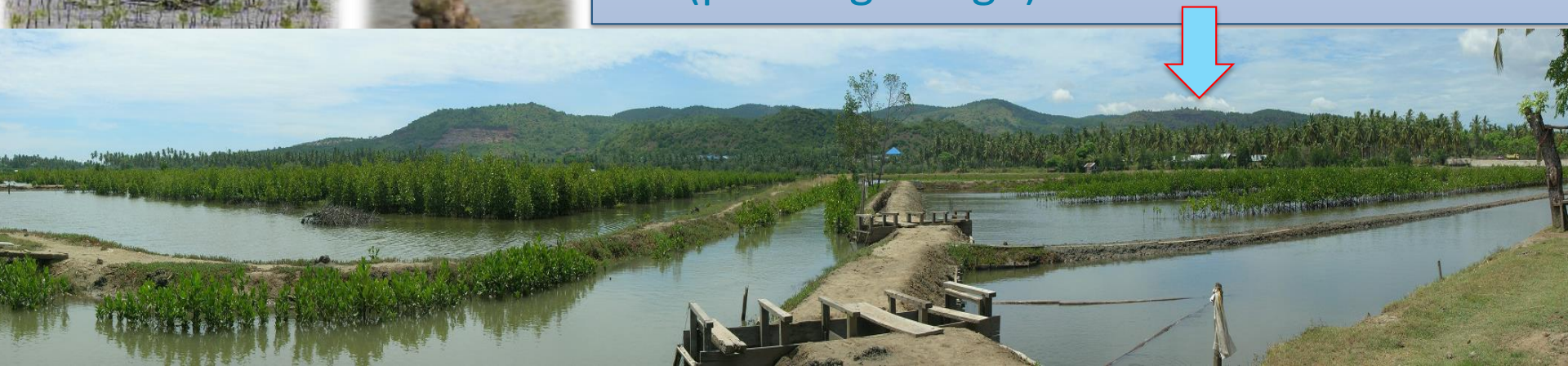
The Green Coast Project comprises 4 (four) major activities: (1) coastal ecosystem rehabilitation; (2) the development of alternative, environmentally friendly means of livelihood; (3) the creation of village regulations that support the coastal ecosystem rehabilitation efforts; and (4) environmental education campaign.

The mechanism applied for activities (1) and (2) was by providing interest-free, collateral-free "loans" of capital to community groups willing to carry out coastal ecosystem rehabilitation (facilitated by local NGO). If the rehabilitation activity is successful – i.e. the number of surviving plants is more than 75% after a year – the loan will then be considered as a grant. If the amount of surviving plants is less than 75%, the loan must be paid back based on the percentage of dead plants. It has been proven that this mechanism ensures better growth of the plants used for the rehabilitation and also improves the community's feeling of responsibility for the activity they have conducted.

Mission : To sustain and restore wetlands, their resources and biodiversity for future generations through research, information exchange and conservation activities worldwide.

1

- Bio-rights is applicable
- Sustainibility issue post project period
- There were still technical errors in coastal rehabilitation
- Challenge in marketing for livelihood program
- Conflict of interest
- Pest and desease attack
- Community's preference on silvofishery (planting design)



Building with Nature Indonesia 2013-present

Reaching scale for coastal resilience

The initiative "Building with Nature Indonesia" aims to build stable coastlines with reduced erosion risk through a unique integration of mangrove restoration, small scale hard-engineering and sustainable land use. In doing so we enhance coastal security for 70.000 vulnerable people by avoiding further coastal flooding and erosion in Central Java and provide them with a long term perspective for sustainable economic development.

Construction of permeable structures as sediment traps and basis for mangrove rehabilitation

Partners:

Building with Nature Indonesia is a programme by Ecoshape, Wetlands International, the Ministry of Marine Affairs and Fisheries (MMAF), Ministry of Public Work and Human Settlement (PU), the Ecoshape Consortium, Witteveen + Bos, Deltares, Wageningen University & Research, UNESCO-IHE, Von Lieberman, the Diponegoro University, and local communities

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EcoShape

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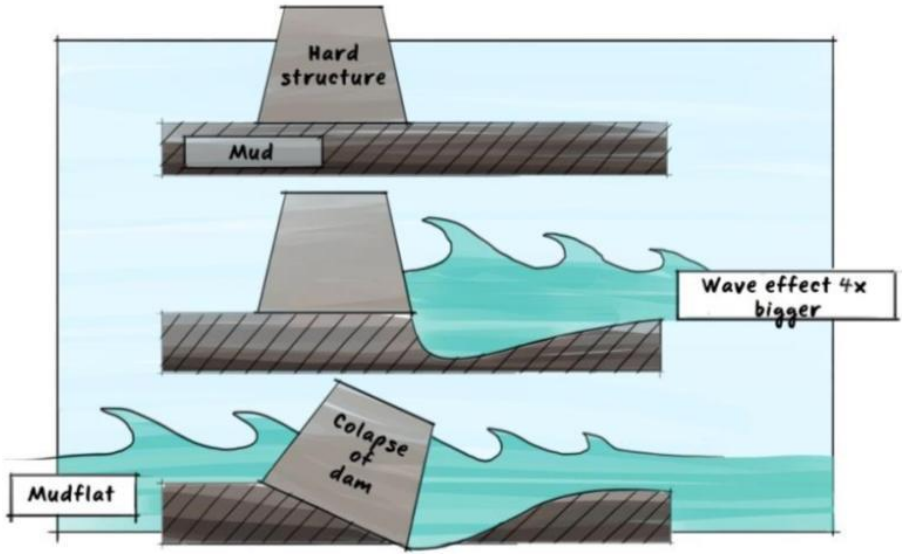
Conventional/traditional solutions make it worse



Waves reflect on hard structures, increasing eroding force

Hard structures prevent mud supply, thus disturbing the sediment balance

EcoShape

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EcoShape

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EcoShape

Progress so far

- Sediment trapped
- Sedimentation rate: 30 – 70 cm/yr
- Mangroves started to come in

BIORIGHTS agreement with communities reached in October 2017

Oct 2017 ← Jan 2015 ← Oct 2014 ← Oct 2013

Evacuated villages and land loss due to subsidence and coastal erosion

No evacuation, mangrove forest established in the front line >>functions as natural barrier, productive silvofishery ponds

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Thank you very much

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