Peatlands Rehabilitation;

"Limitation factors, constraints and lesson learned"

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EXPERIENCES IN FIELD

Re-greening trials

CIMTROP- Central Kalimantan

- Period: 2006
- Northern part of Block C (EMRP)
- 6 Species = *Belangiran (Shorea balangeran), Gonystylus bancanus, jelutung (Dyera polyphylla), Palaquium sp., Diospyros evena, Shorea sp.*
- *SR = 21-92 %*

No	Species	Family	Local name	Number planted	Survival rate (%)
1	*Dyera polyphylla*	Apocynaceae	Jelutung, Pantung	100	21
2	*Diospyros evena*	Ebenaceae	Uring pahe	100	92
3	*Gonystylus bancanus*	Thymelidaceae	Ramin	100	78
4	*Palaquium* sp.	Sapotaceae	Hangkang	100	56
5	*Shorea balangeran*	Dipterocarpaceae	Kahui	1073	89
6	*Shorea* sp.	Dipterocarpaceae	Meranti	1290	37

Adapted from Limin (2007)

(Wim Giesen, 2011)

The project on Rehabilitation of peatlands and establishment of sustainable agro-system in Central Kalimantan

LIPI – JSPS Core University Program on
"Environmental Conservation and Land Use Management of Wetland Ecosystems in Southeast Asia"

- Period : 2000-2001
- Activity: Rehabilitation of intensively disturbed peat swamp forest areas in Central Kalimantan
- Measure: trial planting of 0.75 ha of disturbed PSF
- Applied different regimes (with and without clearing, fertilizer application, and mounds) and with 5 different species (*Shorea balangeran, S. pinanga, S. seminis, Peronema canescens, Palaquium* sp.),
- survival rates = 65-100%

(Takahashi *et al., 2001).*

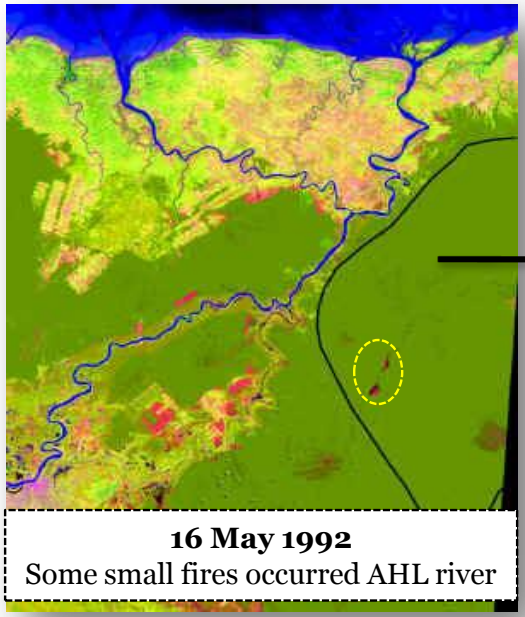
Jelutong plantation – Jambi Province

- PT. Dyera Hutan Lestari (PT. DHL), *SK Menhut No. 31/Kpts-II/1997*
- Species planted: ***Dyera polyphylla***, *Alstonia pneumatophora*, *Litsea spp.*
- Concession area = 8,000 hectares
- SR = 90%
- Diameter Increment = 2 cm
- Trial on tapping latex under different regimes (2004)
- In 1997 = Massive fire

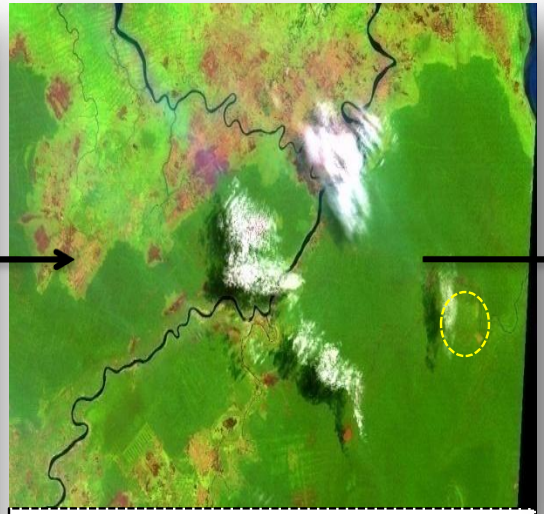
Lesson learned:

- ✓ Technically possible for mass production
- ✓ Fire prevention is crucial

Berbak NP, Jambi



16 May 1992
Some small fires occurred AHL river



18 August 1997
The start of 1997 El Niño fires

1 May 1998
± 25.000 Ha severely burnt

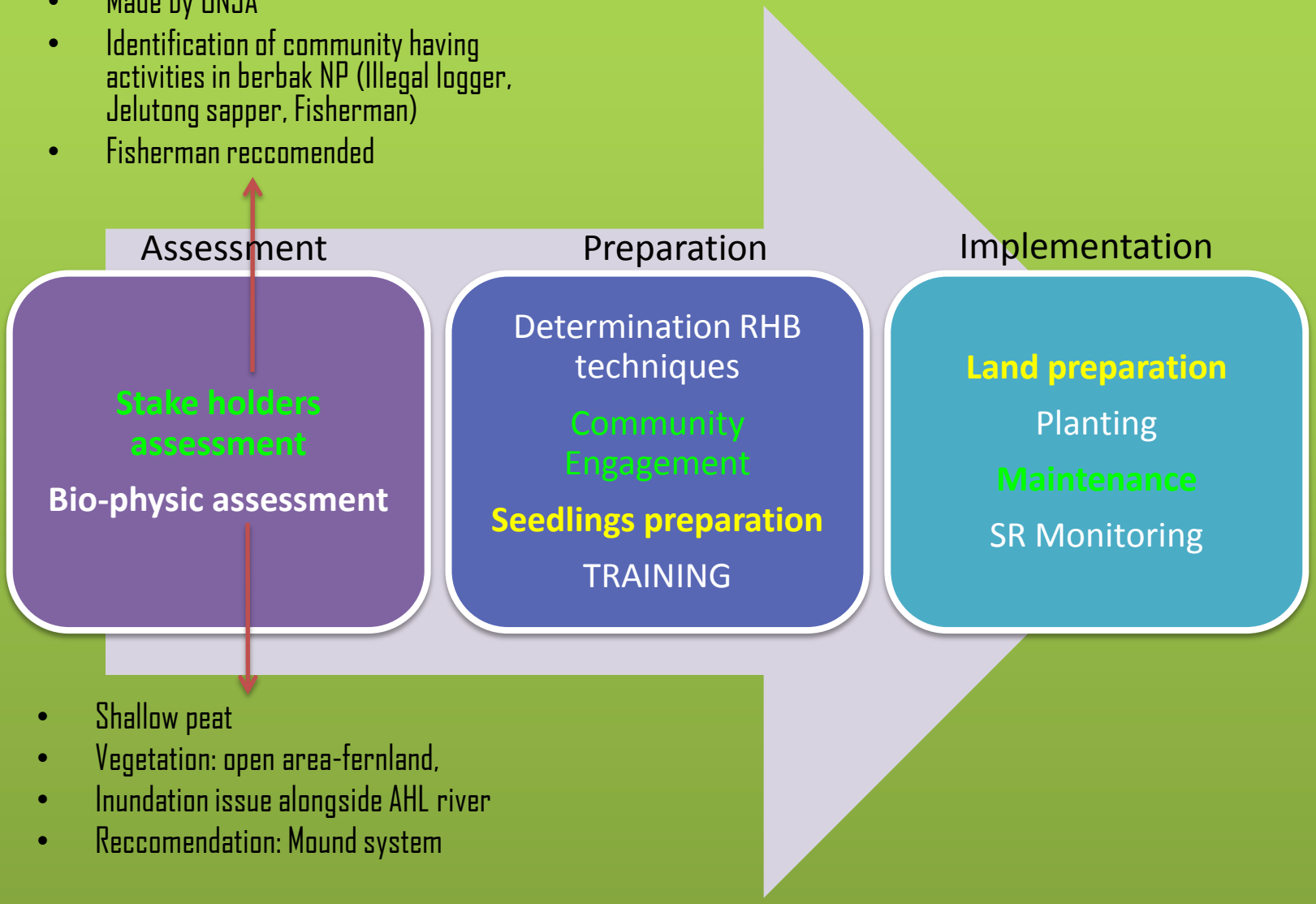
Rehabilitation of ex burnt areas in the core zone - Berbak NP

CCFPI (2003-2005)

- Field implementer: Local community
- MoU (WIIP-PT.PIW-Berbak NP)
- 20 Hectares (4 different sites), ex-burnt Core zone of NP
- 8 species : *Melanorrhoea walichii, Gonystylus bancanus, Shorea pauciflora, Zyzigium spp, Durio carinatus, Combretocarpus rotundatus, Dyera polyphylla, Alstonia pneumatophora*

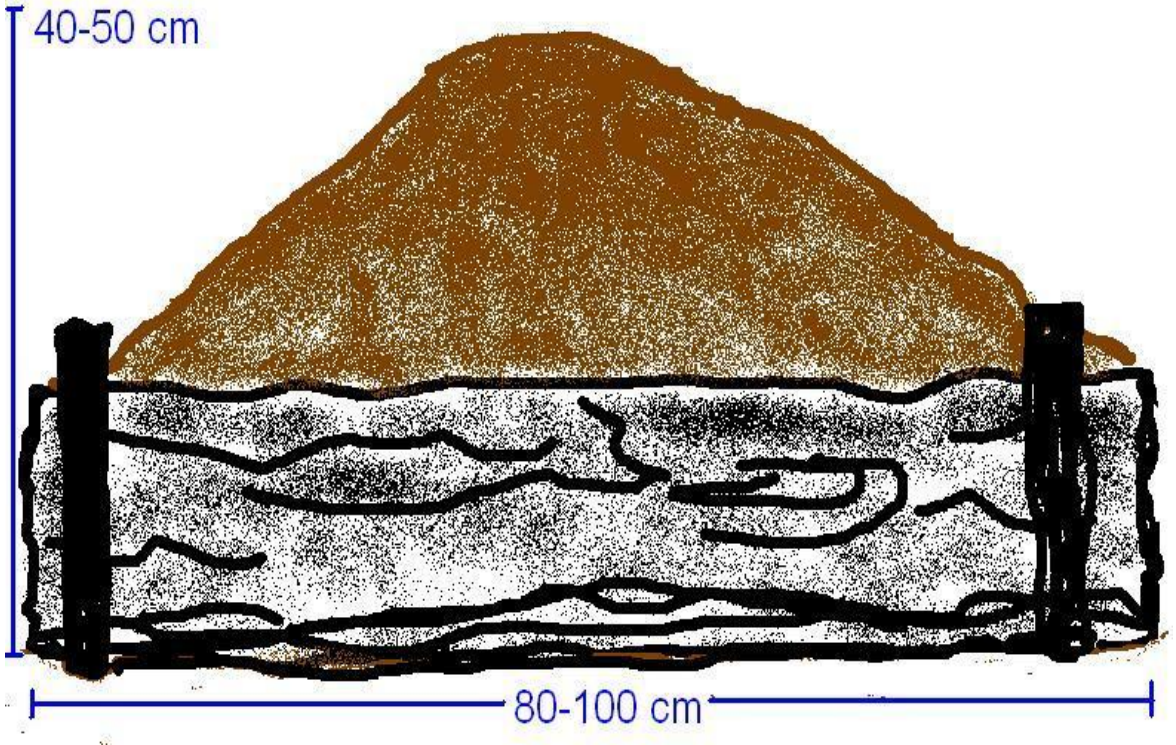
Stages

- Made by UNJA
- Identification of community having activities in berbak NP (Illegal logger, Jelutong sapper, Fisherman)
- Fisherman reccomended



- Shallow peat
- Vegetation: open area-fernland,
- Inundation issue alongside AHL river
- Reccomendation: Mound system

- Construction of Artificial mound
- Anticipation for inundation
- 20.000 mounds





Planting phase 1

- ❑ “Good” in the first month (SR>80%)
- ❑ 50 yearly flooding hit planting site (1-1.5 m, 2 month)
- ❑ SR = 4.9 % in the 3rd month



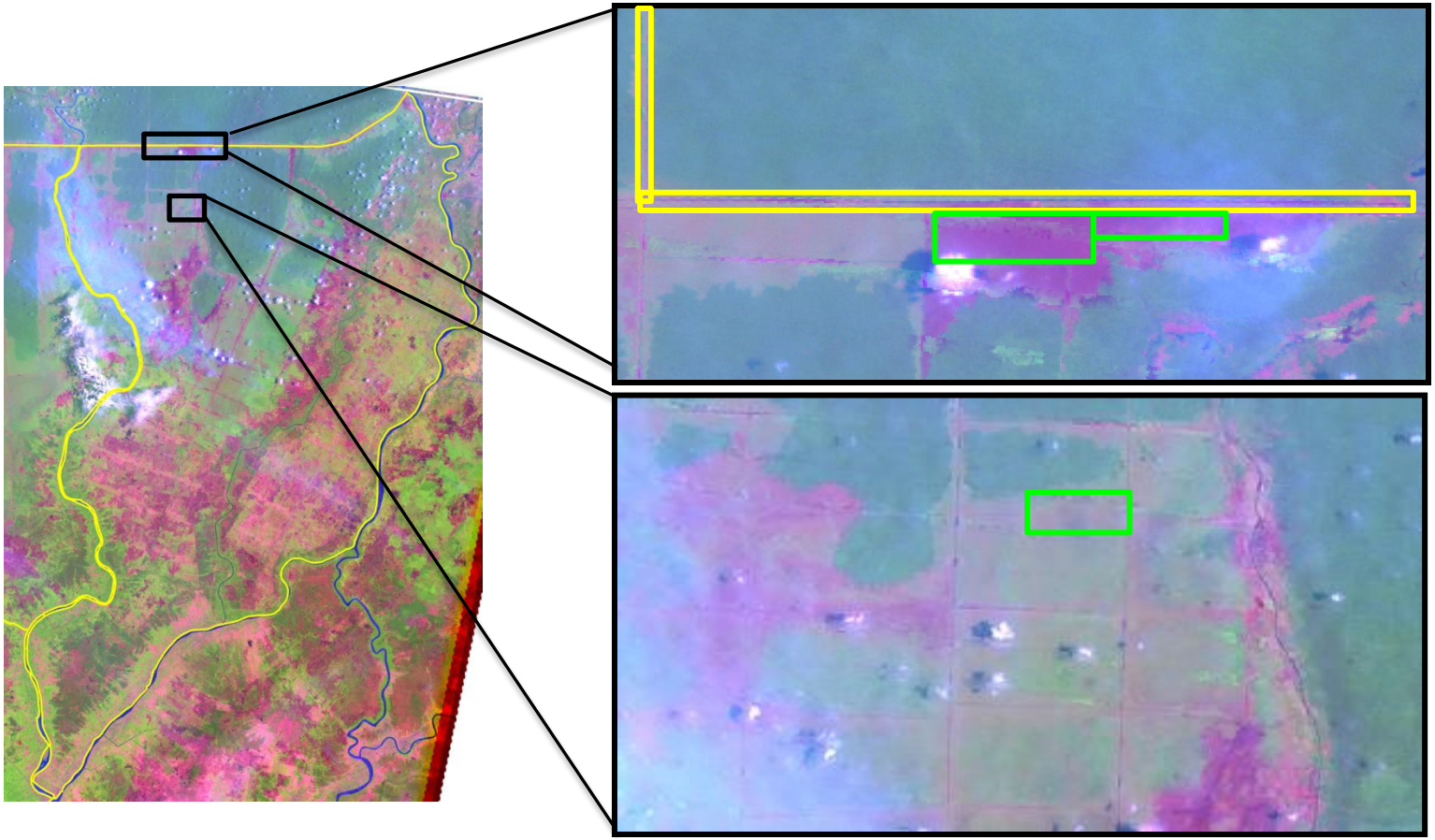

Planting phase 2

- SR=82%
- Best in growth = *Combretocarpus rotundatus*
- *Gonystylus bancanus* showed promising survival in open area, but slow in growing
- *Syzigium spp*. and *Combretocarpus rotundatus* grows very well in wet area



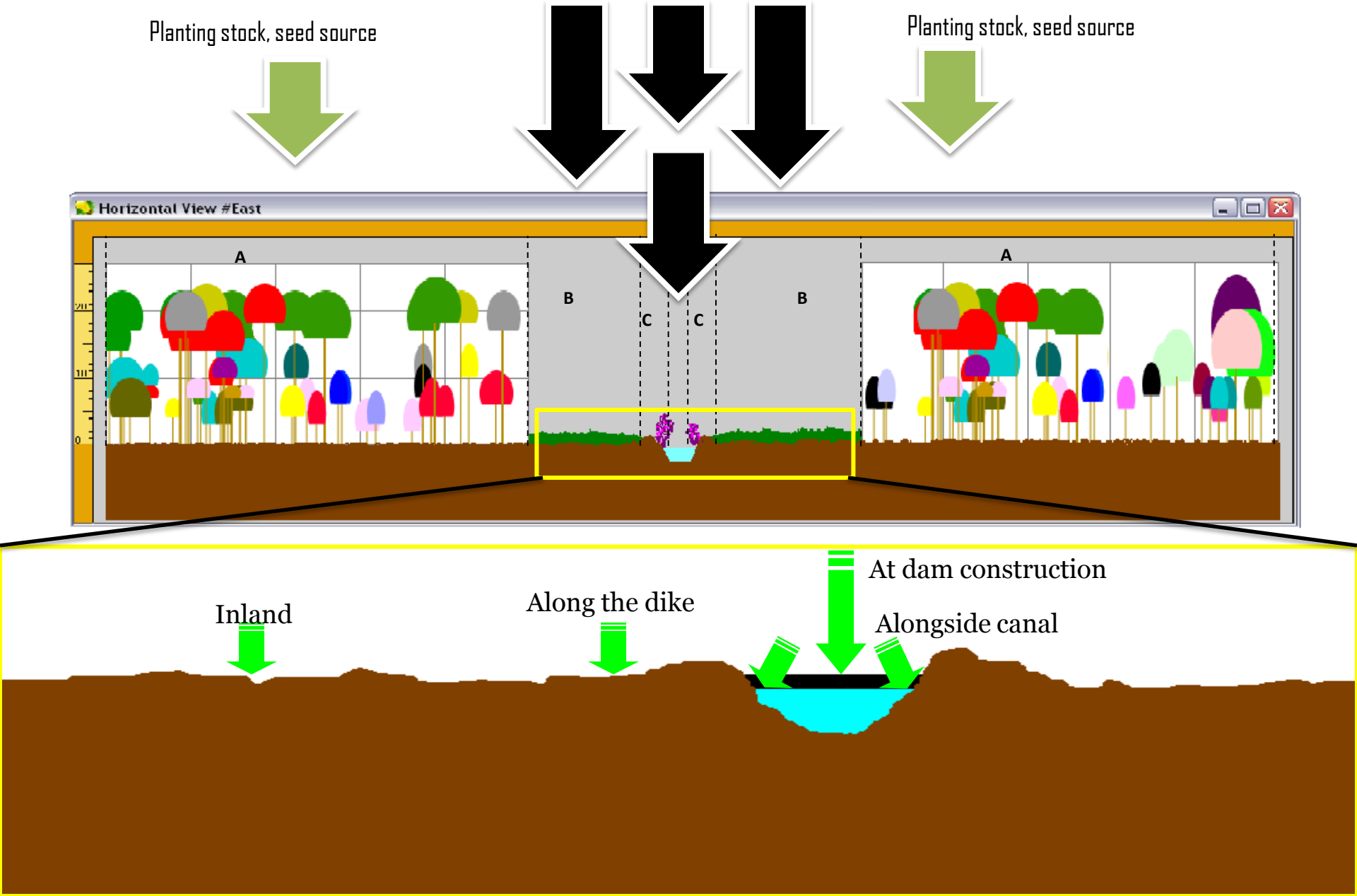
CCFPI + CKPP Rehabilitation Program

- Integrated with Blocking Canal
- 2002-2007
- Total = ± 600 Ha (CCFPI = ± 350 Ha, CKPP= 250 Ha)
- 12 Species (*Shorea belangeran, Dyera polyphylla, Alstonia pneumatophora, Campnosperma spp. Pandanus spp, Lapophetalum, Garcinia spp., Stenomorus spp., Aglaia spp, Shorea spp, Callophylum spp, Syzigium spp.*)
- SR = ± 72% (in the end of project)
- Certain areas burnt in 2009 (2 years after project)



Planting with Local Community

Targeted planting sites



Planting along the dike

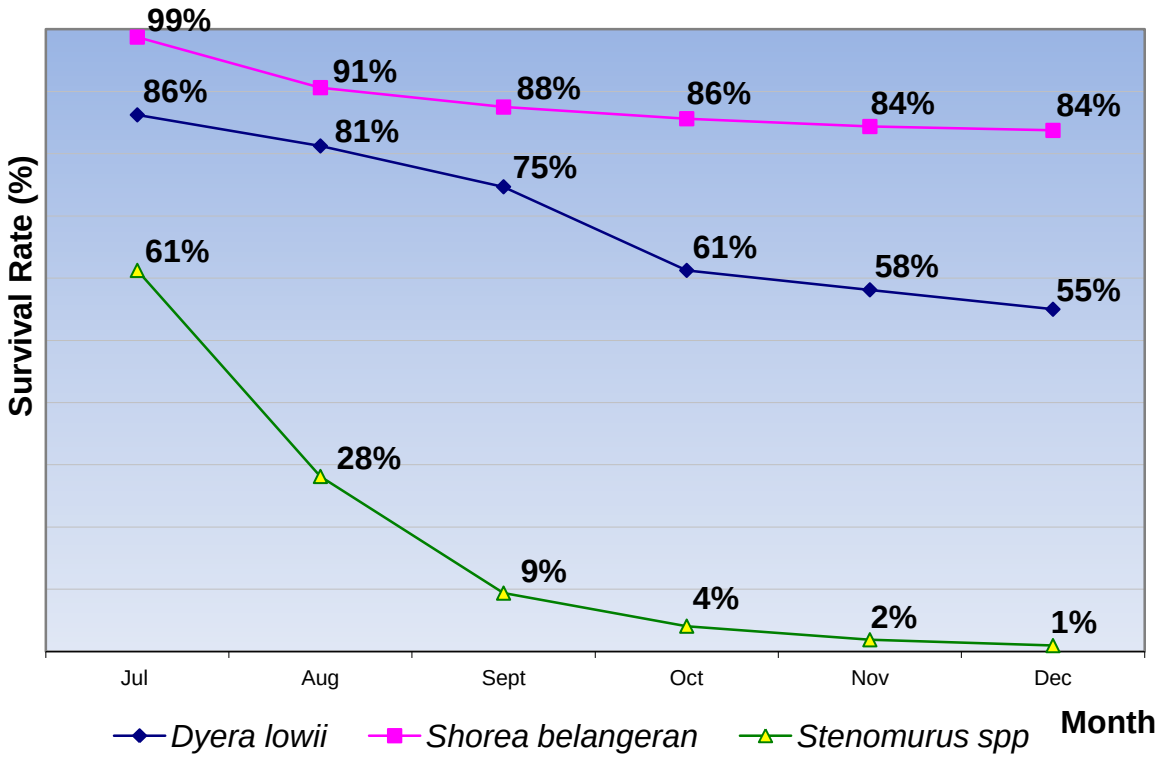
Planting at Dam construction

Planting in inland

Planting alongside canal

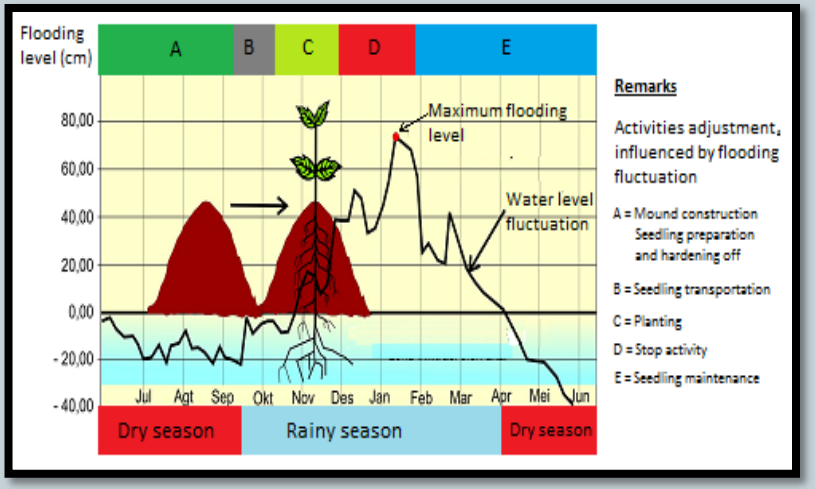
CKPP Planting trial

- WIIP (Iwan Tc Wibisono) – Palangkaraya University (Angga Y. Gandrung)
- 3 species = *Dyera lowii (polyphylla), S.belangeran, Stenomorus spp.*
- N = 300 (100 for each species)
- 6 month (June – Dec 2008)
- **RESULT :**



Lesson Learned

1. Hardening off (seedlings acclimatization) is very important to support survival
2. <u>For drained peatlands</u>, planting is more effective if integrated with hydrology restoration
3. There still many promising species for rehabilitation but limited knowledge on propagation and planting technique
4. Artificial mound system is “relatively” effective but costly
5. Community involvement is important,..primarily in sustaining rehabilitation
6. Training is very important,..shouldn’t too long from implementation
7. Species preferences:
   - ❑ Inland ex-burnt area : *Dyera lowii*, *Alstonia pneumatophora*, *Combretocarpus rotundatus*, *Shorea belangeran*
   - ❑ Wet area (incl. alongside canal, river, ditch) = *Lophopetalum spp*, *Campnosperma spp*, *Shorea belangeran*, and *Pandanus helicopus*



8. Fire prevention is key factor for success
9. Understanding on Hydrology is important to support rehabilitation program

Thank You