

SUSTAINABLE MANGROVE MANAGEMENT FOR RENEWABLE ENERGY



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SUSTAINABILITY The ability of the forest to re-produce and meet future needs



The Annual Allowable Cut (AAC) is the amount of wood permitted to be harvested in the area within a one year period to ensure the sustainability and productivity of the forests.

For PT Klia, the AAC is 100.000 cum wood from an area of 615 ha.

Since the mangrove cutting cycle is 20 years, so the total net production area is divided into 20 cyclical cutting blocks. With this system Year-1 is also the cutting block for year 21. Year-9 is equal with Year-29, etc...



Stand increment (m3/ha/th) of mangrove



MANGROVE WOOD PELLET CALORIFIC



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Description					
Description	100%	75%	50%	25%	0%
GCV (kcal/kg)	4,448	4,608	4,713	4,761	4,859
ASH CONTENT	1.09%	1.13%	1.23%	1.23%	1.36%
MOISTURE CONTENT	5.78%	5.56%	5.36%	4.76%	4.35%
FIXED CARBON	18.48%	19.62%	20.59%	21.45%	21.85%

CONCLUSION

- 1. The mangrove stands (dom Rhizophora sp) may recover themselves naturally, if no such a significant pressure from human activities and/or natural disaster.
- The Rhiz as fast-growing species, having 11 m³/ha/yr (MAI) & 46.9 m³/ha/year (CAI) at the 26-yr-old >>> 1 m³/ha/year. The highest DBH MAI reached at 13 yrs old (= 1 cm/yr);
- 3. mangrove wood 100% and/or mixed with palm shell as a wood pellet show high calorific value and still above international standard
- 4. there are 4 main utilisation of kandelia mangrove concession, such as: timber, non timber forest product, environment services and carbon stock
- 5. mangrove timber harvested from kalia mangrove sustainability managed, can ensure continuously supply for renewable energy ever and forever.

MULTI UTILISATION OF KALIA MANGROVE IN WEST KALIMANTAN, INDONESIA

honey bee

fish

ecotourism

mangrove lobster

bioethanol

ECO FUEL

Bioethanc

dye

wood pellet

wood chip

ECOTOURISM: a Potential to Nature-Based Tourism

ACTIVITIES:

- Bird and wildlife watching (including Proboscis, Dolphin, Otter, Firefly, and others)
- Angler / fishing
- Forest and nature study / research
- Mangrove board walking
- Photography
- Canoeing, boating
- Forest exploitation including seedling plantation and tree adoption
- Visit to charcoal kiln
- Convention and meeting
- Culinary / Food tourism

BASIC CONSIDERATIONS Tourism could be an agent to arouse a love of nature

- Ecotourism is low impact nature tourism. Conserve the environment, contribute to conservation.
- Improve the welfare of local people.



COOPERATION networking needed among:

- Government (local, central)
- Local communities
- NGOs
- Travel, hotel and leisure industry
- Others

FRIENDS & NETWORKING

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The Borneo

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