

PRESENTATION

2nd BIOMASS-ASIA WORKSHOP

13-15 Dec 2005
BANGKOK

UTILIZATION of OIL PALM BIOMASS:
MALAYSIA'S EXPERIENCE

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Palm Oil- Important Contributor To Malaysian Economy

- Major Agriculture Export Earner
- Downstream Manufacturing
- Rural Employment
- Socio-Political Importance



Major Exports

- Electric and electronic- 49.4%
- Crude Petroleum- 5.6%
- Chemicals and Chemical Products- 5%
- Palm Oil- 4.4%
- Wood Products- 2.8%



Oil is only 10% of palm
oil's total Biomass

90% comprising shells, fibers and
other residues yet to realize full
commercial potential



Palm Oil's Underutilized Biomass

- Palm fruit fibers- 12% ffb
- Palm kernel shells-6% ffb
- Empty Fruit Bunches- 20% ffb
- Decanter solids- 5% ffb
- Effluent Solids, sludge oil, boiler ash

Drivers of Palm Biomass Utilization

- Need To Diversify Revenue
- Environmental Pressures
- Alternative Energy Demand

Traditional Utilization of Biomass

- Fibers and shells used to fuel boilers for processed steam and electricity during non-processing hours; surplus dumped
- EFBs are either used as mulch or incinerated to produce bunch ash; 40% still available as surplus
- Palm fronds left to rot on plantations providing fertilising value
- POME generally treated in ponds and disposed

The Environment Agenda Has
Become
A Social, Economic, Political
Concern For Mankind



Energy Supply and Demand
Has Become A major Issue
in the Environmental Debate-
Global Search for Cleaner and More
sustainable energy;
Better Energy Utilization Efficiency



Emerging Commercial Use for oil palm Biomass

- Alternative Timber- MDF, particle board, block board etc
- Useful chemicals; carboxymethylcellulose (CMC) a surfactant, cellulose and lignin
- Paper manufacture
- Potential Energy Source, biodiesel

Estimated Energy Value

- Palm fibers, 40% moist- 11,350kJ/kg
- EFB, 60% moist, 6028kJ/kg- most abundant
- Shells, 10% moist, 18,850 kJ/kg
- Biogas (60% methane)- 900 million m³, 22000kj/m³

Future Utilization

- Ethanol from Cellulosic materials; R&D needed through the selection of the right biochemical path
- Gasification of EFBs, production of hydrogen

