# THE 'RURAL' DELTAS IN INDONESIA

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Deltas in Time of Climate Change Conference

Rotterdam, Netherlands

30 September 2010

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# DEFINITION

The term 'lowlands' here refers to:

- Coastal and near- coastal (tidal) peat and swamp lands ('*rawa pasang surut*')
- I.e. the 'rural' deltas of Outer Islands, rather than the 'urban' deltas on Java

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# LOCATION


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# DEVELOPMENT < 1997

- Since 1920s, spontaneous: 2.4 million ha
- Government 1970/80s: 1.3 million ha
- Private sector since 1980s: oilpalm, pulp, bio-fuels, shrimp farms (tambak), etc.

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# 1997 TURNING POINT

- One Million ha Mega-Rice (Peat) Project Central Kalimantan of 1996 disaster
- Economical, political crisis 1997/98
- Reforms and decentralized natural resource management since 1998

→ Political support lost: 'decade of neglect'
→ Massive expansion by private sector

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# 2004 RESTART

The Netherlands in the lead:

- Master Plan EMRP – C. Kalimantan
- NLDS - Roadmap National Lowland Strategy

→ Current: WACLIMAD – Policy dialogue

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# DESCRIPTION

Complex landscape:

- Tidal and freshwater swamp lands
- Peat lands (70-80% of total national)
- Mangrove belts, coastline

Unique characteristics:

→ Dynamic environment
→ Connected hydrology
→ Fragile eco-systems
→ Unripe mineral and organic soils

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# MAIN CHALLENGE

FINDING RIGHT BALANCE OF CONSERVATION + DEVELOPMENT

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# CONSERVATION CHALLENGES

The tidal lowlands hold:

- Over 40 % of the world's peat lands
- Rich and diverse eco-systems
- A uniquely adapted cultural diversity

Current status/issues:

- → Peat lands are under severe pressure
- → Loss of biodiversity, <4% PSF still intact
- → Main source carbon emissions (45% of national CO2 emissions from peatlands)

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# NIPAH, SALINITY INTRUSION

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# PEATLAND FOREST

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# MANGROVE

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# FOREST RUBBER

Central Kalimantan

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# COPRA, CHARCOAL

Coastal zone Jambi

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# SAGO, FISHERIES

Papua

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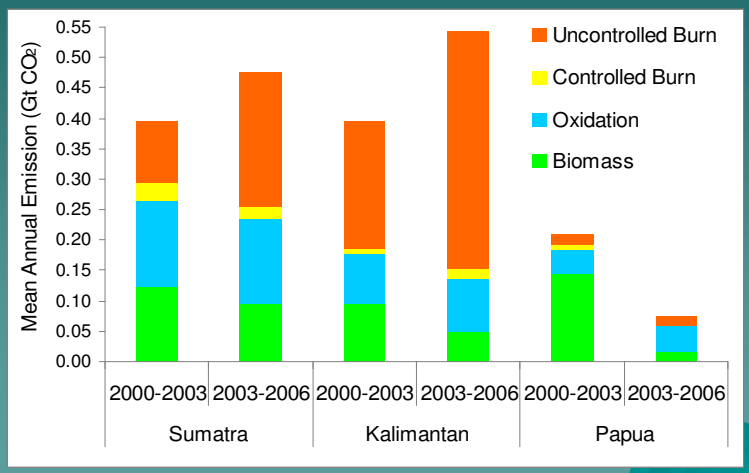
# Emisi Karbon Lahan Gambut

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*Sumber*: Bappenas (2009) Reducing Indonesia's peat emissions

# DEVELOPMENT CHALLENGES

Tidal lowlands agriculture:

- Tidal lowlands suitable if properly selected
- Land reclamation is long-term process
- Lack of data

Current status/issues:

→ Current agriculture is slacking/declining
→ Increasingly targeted for new agriculture

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# TRADITIONAL SYSTEMS

Tidal irrigated rice - coconut

Spontaneous- tidal river banks

# GOVERNMENT RECLAMATION

Mainly rainfed rice, other

Ex-transmigration - tidal swamp interior

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# PRIVATE SECTOR

Oilpalm, private sector, (peat-) land conversion

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# DEVELOPMENT ISSUES

Tidal Lowland Schemes:

- Micro-diversity, hydro-topography,
- (Re-) designs not completed,
- Inproductive lands ('Lahan Tidur'),
- Acidity, unripe soils, poor drainage.

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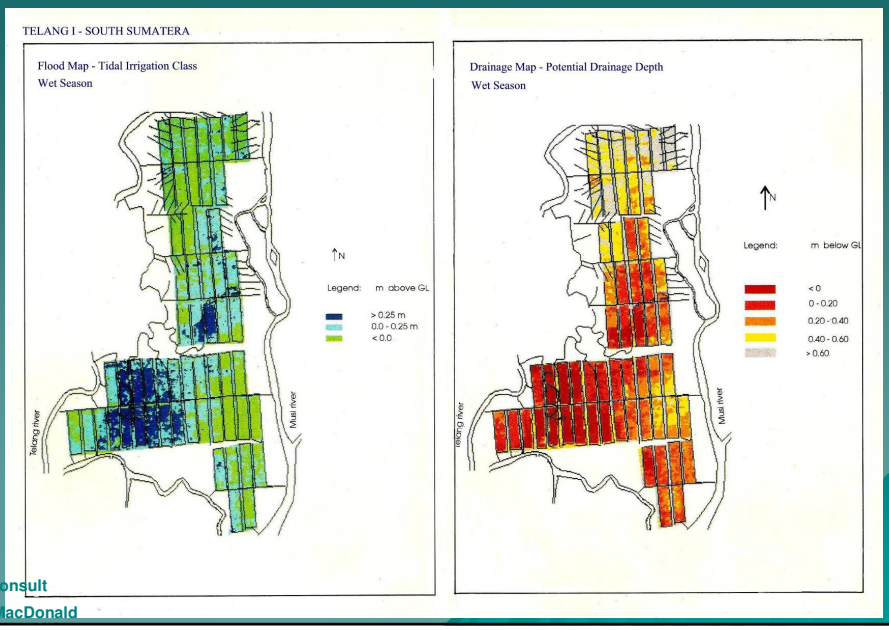
# MICRO-DIVERSITY

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# POOR DRAINAGE = ACIDITY

- Dead-ended canals
- Unripe soils
- Stagnant water

→ **Controlled drainage**

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# POOR DRAINAGE = UNRIPE SOILS

No mechanization

- Poor drainage
- No land preparation

→ **Low yields**

Mechanization

- Controlled drainage
- Land preparation

→ **High yields**

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# FAILED AGRICULTURE

'Lahan Tidur'

South Kalimantan

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# FAILED TAMBAK → DEGRADED MANGROVE

Mangrove

Central Kalimantan

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# DEFORESTED PEAT → CARBON EMISSIONS

Ex-PLG

Central Kalimantan

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# FOREST FIRES

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# HAZE

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# LAND CLEARING

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# CLIMATE CHANGE CHALLENGES

Tidal lowlands vulnerability:

- Climate change (rainfall, temperature) will increase fire-risks in peatland systems
- Climate change (rainfall, temperature) will increasingly affect agricultural practice
- Sea-level rise will threaten and further challenge the tidal lowland eco-systems

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# KEY FINDINGS

- Conditions of coastal lowlands are critical and require bold and urgent measures
- Coastal peat- and lowlands share unique risks associated with climate change
- Consider coastal peat- and lowlands a single, complex 'eco-system', to be managed in unity

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# MANAGEMENT PRINCIPLES

- (Tidal) lowlands are unique, dynamic and sensitive eco-systems with closely related processes
- (Tidal) Lowlands require a resource-based development and land-use approach
- (Tidal) lowlands development and conservation needs to follow a hydrological landscape approach
- (Tidal) lowlands require adaptive management for both conservation and development, learning curve

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# MASTER PLAN EMRP 2007-2008

Dutch financed

Spatial approach (tidal) lowlands:

- Eco-hydrological landscape as basis
- Macro-zoning and Management Units

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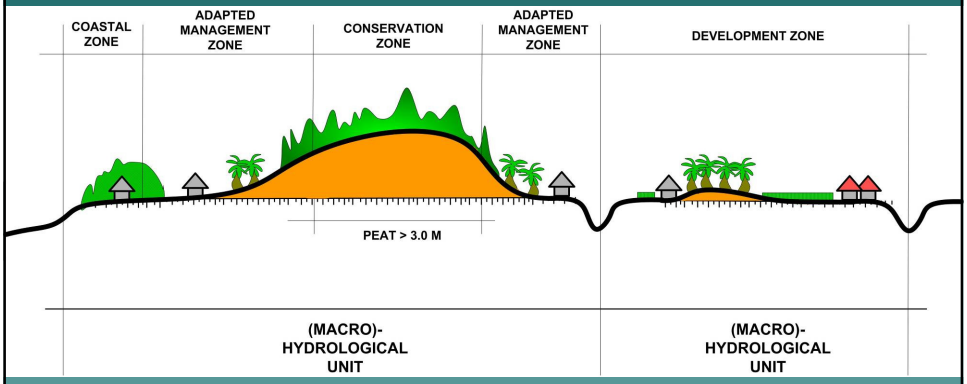
# Macro-Zoning Tidal Lowlands –Transect




KEY WORD – **INDEPENDENT HYDROLOGY**

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EXAMPLE:

MASTER PLAN

EMRP – 2008

MACRO-ZONING

OVERRIDING POLICIES:

DEVELOPMENT

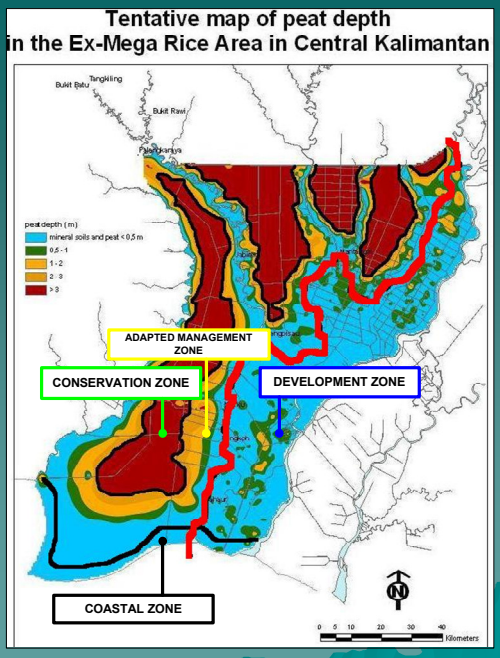
CONSERVATION

•Legal conservation area

•Adapted management zone

COASTAL ZONE

**KEY WORD = INDEPENDENT HYDROLOGY**

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# NLDS
# 2007 - 2008

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Theme: 'Roadmap' towards a 'National Strategy on Lowland Development'

- → Broad holistic approach
- → Multi-sector/stakeholder involvement

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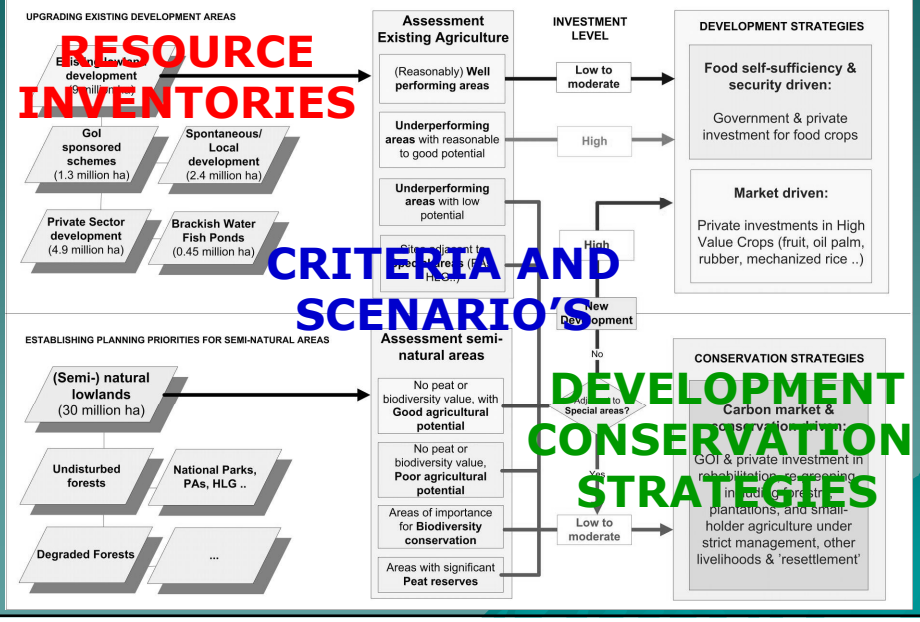
## NLDS OUTLINE ROADMAP

| Focus | | Key-elements | Remarks |
|---|---|---|---|
| **Enabling Framework** | Policy and legal aspects | ▪ Policy direction integrated lowland and peat land management<br>▪ Harmonization of overall policy and legal framework<br>▪ Finalization and harmonization of lowland and peat land regulations | Basis for role-sharing, institutional arrangements, capacity building, and planning framework, RPJM and RENSTRA |
| | Institutional aspects | ▪ Role-sharing agreements<br>▪ Institutional assessments<br>▪ Capacity building strategy | Roles of central and local government, communities, short- and long-term management set up |
| | Resource-based planning | ▪ Update resource inventories<br>▪ National master plan<br>▪ Regional master plans | Macro-zoning as basis for national and regional policies and spatial planning, integrated land use evaluation |
| **Development Strategies** | Intensification of existing agriculture | ▪ Scheme ranking, priorities and scenario's<br>▪ Infrastructure, agriculture, socio-economy<br>▪ Regional context<br>▪ Small-holder/private sector role<br>▪ Institutional aspects | Landscape/delta approach, local and ex-transmigration communities, re-definition of staged development approach, conservation measures |
| | Lowland conservation & rehabilitation | ▪ Identification of conservation areas: peat lands, bio-diversity value<br>▪ Plantation licenses<br>▪ Rehabilitation strategy<br>▪ Separation development & conservation | Landscape/delta approach, involvement of local communities, urgent measures threatened sites |
| | New agricultural development | ▪ Site selection criteria<br>▪ Food crops, tree crops<br>▪ Small-holder or private sector | Landscape/delta approach, site selection, management form, crop type selection |
| **Financing mechanisms** | Domestic | ▪ GoI national, regional budget, private | GOI options and opportunities |
| | Foreign Aid | ▪ Donor, grants | |
| | Alternative | ▪ PPP, Carbon Credit, etc | |

# NLDS DEVELOPMENT PLANNING




# WACLIMAD 2010 >

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Theme: From 'Roadmap' to ' Action Plan'

Priorities:

- Instil sense of urgency amongst agencies
- Consensus on definitions (tidal) lowlands
- Consensus on basic principles (tidal) lowlands
- Multi-sector short- and long term policy agenda's
- Spatial planning using landscape approach

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# CLOSING STATEMENT

Indonesia's ('rural') lowland deltas require integrated, participative, and adaptive management for both conservation and development.

In context Indonesia today → priority actions:

(i) implement urgent non-regret measures,

(ii) policy decisions to integrate current sectoral, national and regional approaches, and

(iii) spatial planning based on actual potentials, values & science.

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**THANK YOU**

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