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# Identification of Responsible Cultivation Areas for Biofuel Crop#

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*#some part of work is jointly conducted with Ecofys, The Netherlands*

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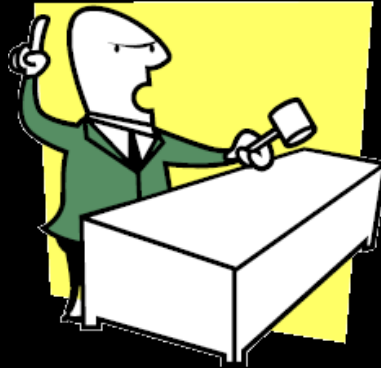
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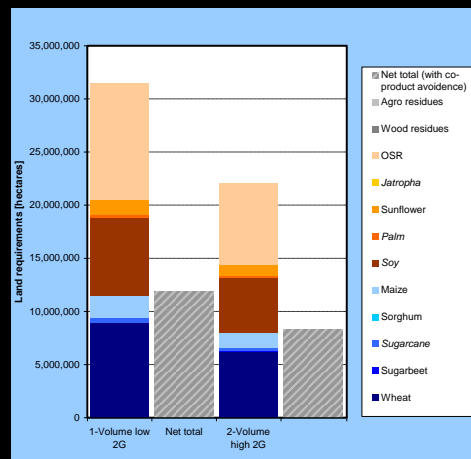
# 1. Background and policy context



## EU 10% and Indonesia target

ECOFYS

- EU RES target includes 10% transport fuel target
- 10% equals 35 Mio toe
- Land requirement: 8 – 31 Mha
  - Role of residues
  - Role of co-products
- Indonesia target:
- Biofuel 5% (Presidential Decree no. 5/2006) → 2016-2025 = 22.26 Mio kl
- Land requirement: ± 5 Mha



Source: Ecofys (2008) – contribution to Gallagher review

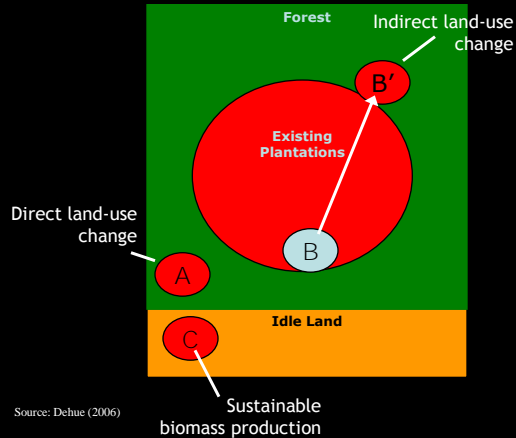




# LUC – understanding the issue



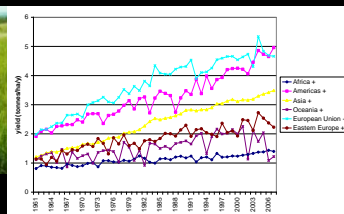
- Land requirements key concern for:
  - Biodiversity (deforestation)
  - Change in carbon stocks
  - Land right issues
- Non-forest cover areas in Indonesia:
  - Waste, idle, degraded lands: 7-17 Mio ha (BPS, Deptan, several media, 2008)



# Opportunities for sustainable biomass production

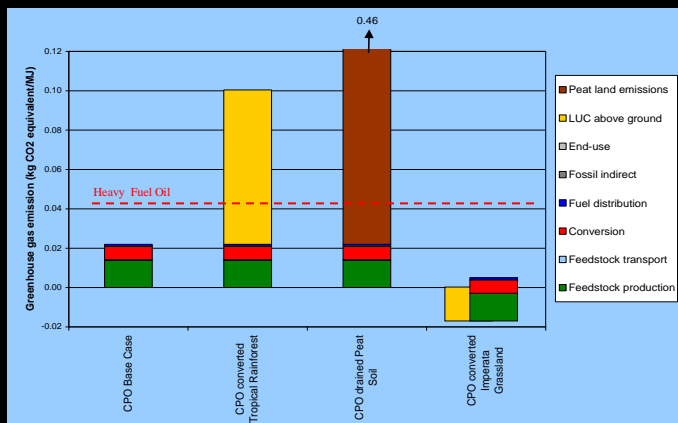


- Residues
  - Primary - mind soil quality
  - All - mind current uses
- Energy crops
  - Sustainable production on "idle land"
  - Sustainable productivity increases
- Aquatic biomass?
- Address public concerns
  - Including competition with food
- Prevent future carbon hit from LUC
- Increase biofuel value through higher GHG-performance





# Impacts of LUC on GHG-performance



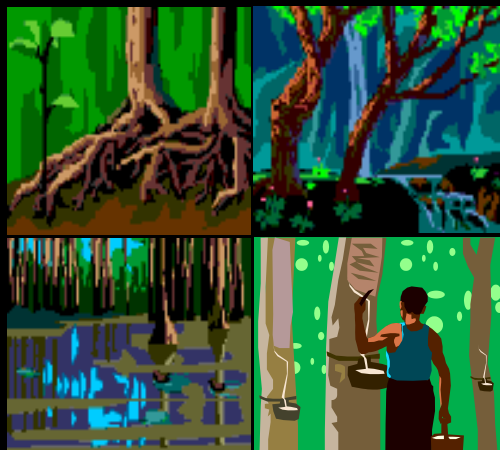
LUC is a risk, but positive LUC can significantly improve GHG-performance



Source: Ecolis (2014) - GHG analysis oil palm for Comissiera Blok-Essen



## 2. Identifying responsible cultivation areas for biofuel crops





## Responsible cultivation areas

*“Identify areas that can be used for environmentally and socially responsible energy crop cultivation without causing unwanted displacement effects”*

- Users - focus on economic operators
  - Practical usability at the level of production units
- Scope – site identification
  - Outside scope: Plantation design, permitting process etc



## Defining “Responsible Production”



For the RCA concept, an area is considered suitable for “responsible” cultivation if it:

- 1) does not cause unwanted displacement effects, and
- 2) complies with the legal and sustainability criteria, that refer to site selection, of the following biofuel sustainability initiatives:
  - EU Renewable Energy Sources Directive (RES Directive)
  - Renewable Transport Fuel Obligation (RTFO)
  - Roundtable on Sustainable Biofuels (RSB)
  - Roundtable on Sustainable Palm Oil (RSPO)





## Principles



This leads to the following principles for RCA's:

1. Energy crop cultivation does not lead to the loss of one or more High Conservation Values
2. Energy crop cultivation does not lead to large reductions in carbon stocks
3. Energy crop cultivation does not violate formal or customary land rights
4. Energy crop cultivation does not violate national or international law
5. Energy crop cultivation does not cause unwanted displacement effects

=> Criteria on present food security and stakeholder consultation are implicitly included

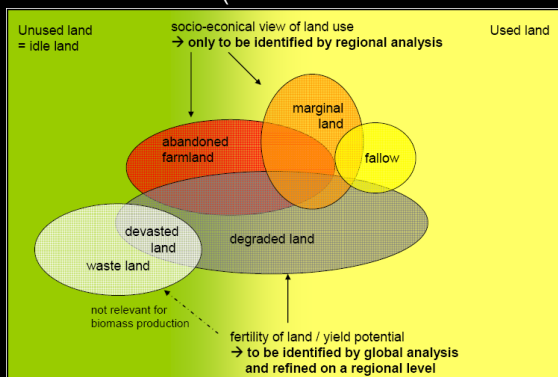
- Food security = unwanted displacement effect
- Stakeholder consultation = process (methodology)



## Existing definitions



- Öko- Institute/ IFEU (Sustainable Global Biomass Trade)



Source: (Ökoinstitut 2008)

- WWF/another corporation project – use above definitions
- Unilever/Copernicus – degraded land for sustainable palm oil – no definition?
- WWF Indonesia Workshop



# Observation from a study on definitions of Land Categories

(WWF and another corporation)

**Used land and unused land** refer to a gradual change from intensely used land towards land that is not influenced by any (anthropogenic) land-use form. Agriculture and forestry as well as infrastructure can clearly be considered as “use” of land to meet humans needs (food, feed, fiber, fuel, etc.), whereas extensive land-use forms (e.g. collection of medicinal plants or sporadic hunting, shifting cultivation with long periods of fallow) make it difficult to decide up to which use-intensity land is still considered as “unused” (OEKO 2008)

**Abandoned farmland is land** – within a cultural landscape (Schäfer 1992) – that was previous used for agriculture or pasture, but that has been abandoned and not converted to forest or urban areas (Field et al. 2007). The agricultural activities have been stopped for economical, political or environmental reasons, e.g. set-aside-land (politically) or degraded farmland (environmentally) (OEKO 2008).



**Land degradation** is a long-term loss of ecosystem function and services, caused by disturbances from which the system cannot recover unaided (UNEP 2007).

Land degradation is the decline of natural land resources, commonly caused by improper use of the land (Bergsma et al. 1996).

The terms **unused land and idle land** can be used synonymously. Idle land comprises all types of unused land (see above), i.e., abandoned farmland, degraded land, devastated land and waste land as well areas of undisturbed wildlife (OEKO 2008).

**Marginal land** is defined as an area where a cost-effective production is not possible, under given side conditions (e.g., soil productivity), cultivation techniques, agriculture policies as well as macro-economic and legal conditions (Schroers 2006).

**Wasteland** refers to land without appreciable vegetative cover or agricultural potential (active dunes, salt flats, rock outcrops, deserts, ice caps, and arid mountain regions; Oldeman et al. 1991).



## Observation from WWF-Indonesia workshop on definitions of land categories in Indonesia

- ***Lahan terlantar (unused land)***: is an area which has not been exploited (used) efficiently and optimally by the owner. This is usually an open area and/or covered by shrub and brush. The area can be abandoned land or idle land, often due to economy reason (lack of investment, funding, etc).
- ***Tanah terlantar (unused land in law term)***: is an area which has a permit (HGU, concession) but has not been utilized yet. The owner has got an HGU but has not obtained a land right according to applicable law and regulation rule (Government Decree no 36,1998 about the orderly and utilization of unused land). This may happen due to a lengthy bureaucracy process.
- ***Lahan kritis (degraded land)***: is an area whose functions are deteriorating – this can be assessed basing on bio-physical aspects (DG of Forest and Land Rehabilitation Decree no.41/kpts/V/1998 about Compilation of RTL-RLKT Water basin Guidance)
- ***Lahan tidur (idle land, set-aside lands)***: is an area that is inactive and unproductive according to provincial regulation, or a land that is yet to be utilized according to the Ministry of Agriculture.



## Conclusions



- All of the land types indicated in the graph of Ökoinstitut 2008 could in principal identify as Responsible Cultivation Areas  
=> for the land categories “used land” and fallow land”, the original function of the land may not be displaced or a sustainable alternative must be introduced
- None of the land types shown in the picture could qualify as RCA only on basis of their definition given in the paper of Ökoinstitut 2008 or during WWF-Indonesia’s workshop  
  
=> all types of lands could – for example – contain high conservation values  
  
=> The RCA definition needs to stick close the goals of RCA’s



Initial thoughts on a flow chart based on discussion between WWF Indonesia and Cargill:

### A flow in determining land use

#### Ecosystem

Is it degraded/idle/waste land (no forest cover)?

No

Protect

No

Re-evaluation of permit

Yes

#### Crop

Is it good for food crop?

No

Is it suitable for oil palm (Bio-fuel)?

No

Restore/reforest/agroforestry

Yes

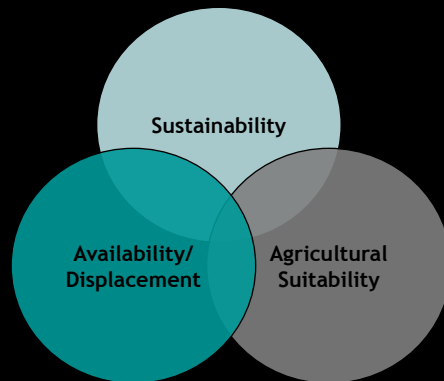
Yes

No Oil palm, for farm uses?

Planted by oil palm

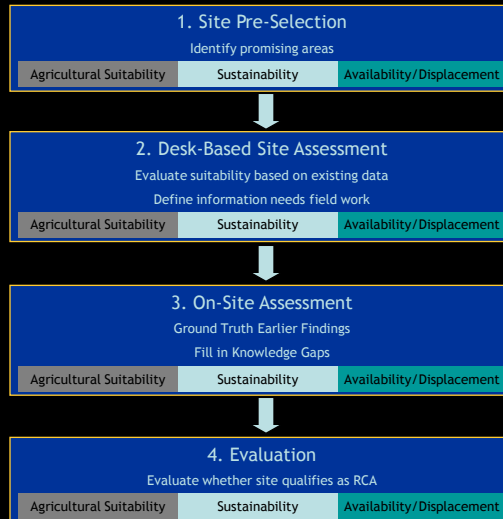


## Methodology for RCA's: integral approach

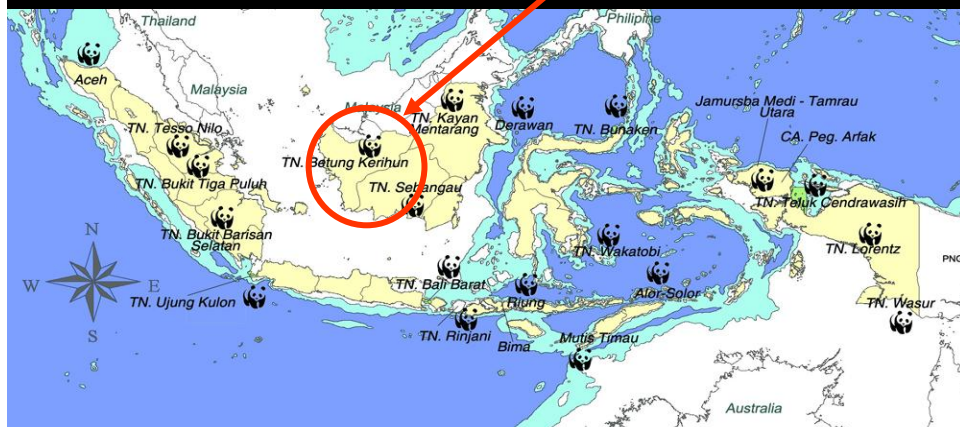




# Methodology for RCA's: 4-step process



## 3. A test case in West Kalimantan

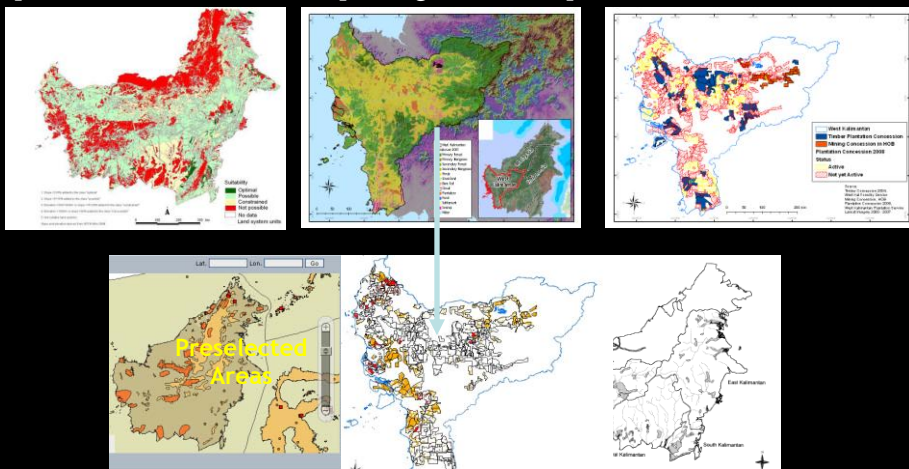




## Synthesis step 1



Agriculture suitability → forest cover → concessions (active/inactive) → protected sites → HCV → imperata grasslands → pre-selected areas



## Desk-based Site Assessment



- Sustainability
    - Desk-based Site HCV-Assessment of the preselected areas with help of the *HCV toolkit* (WWF 2003) and the “*Good practice guidelines for High Conservation Value assessments*” (Proforest 2008)
  - Agricultural suitability
    - Refine desk-based information from site-selection phase. E.g. more detailed soil and slope information.
  - Availability/Displacement
    - Refine desk-based information from site-selection phase. E.g. more info on land claims and potential land conflicts.
- => Identify data requirements field work
- Data to verify desk-based findings
  - Data to fill knowledge gaps



## On-Site Assessment



- HCV assessment
    - E.g. critical species identification
  - Agricultural assessment
    - E.g. soil analysis
  - Displacement assessment
    - Identify current uses and their importance for livelihoods / culture (HCV 4/5), including land-rights issues
    - Identify alternatives
    - Analyse impacts of alternatives & preconditions for sustainability
- ⇒ Verify findings desk-based Site Assessment
- ⇒ Fill knowledge gaps desk-based Site Assessment
- ⇒ Identify sustainable alternatives for current uses



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## Evaluation:

- Evaluation of land suitability for RCA based on collected info
- Reporting of findings and conclusions
- Consultation with stakeholders and experts
- Summary

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