Potential of degraded land for sustainable bioenergy (incl. woody biomass) production

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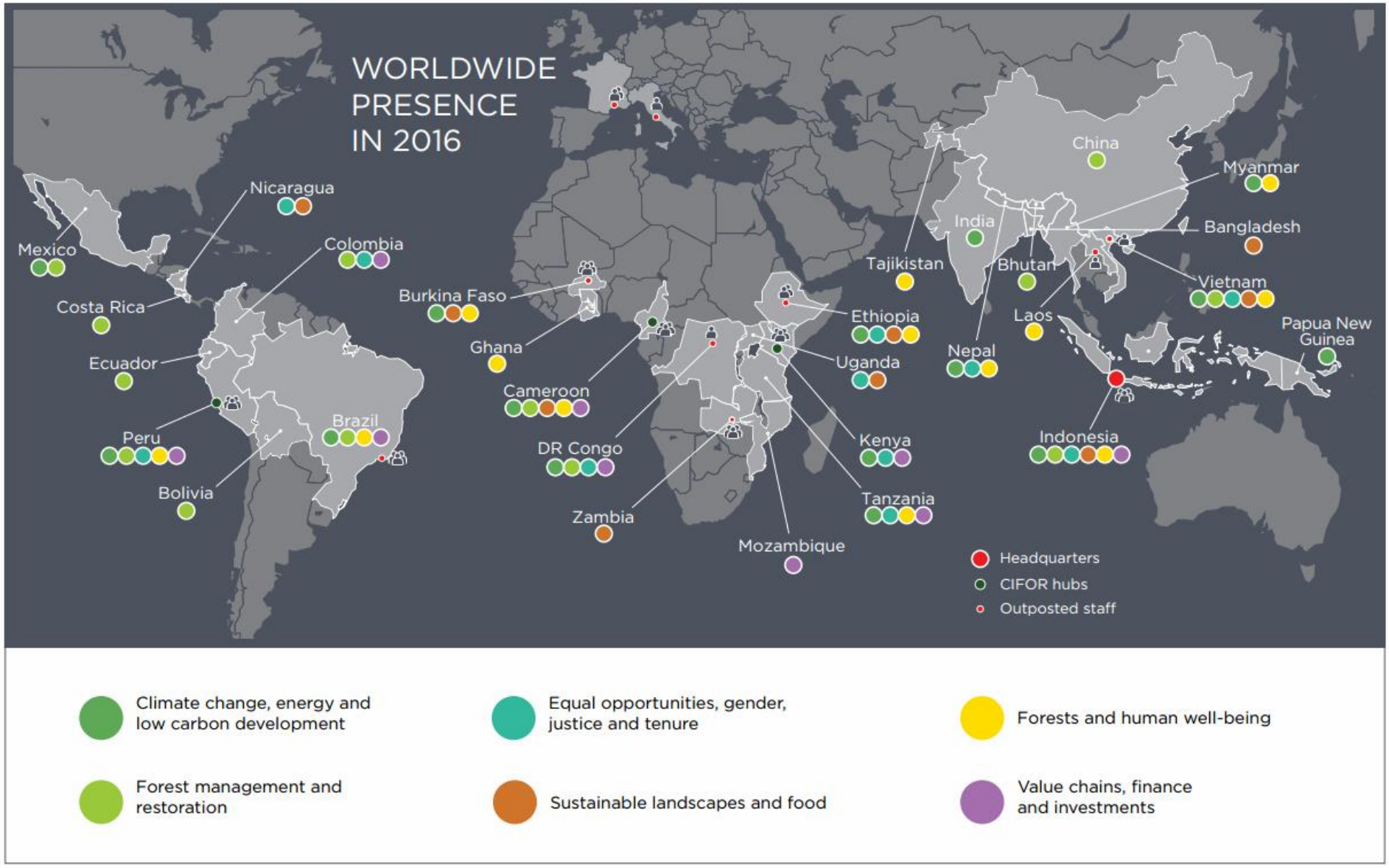


Current activities I

- systematic map of the socioeconomic and environmental impacts of charcoal and fuelwood value chains in Sub-Saharan Africa
  - Protocol published*)
  - Map in its final stages
- pushing for targeted reforms in Zambia in 2016-2017 on the charcoal value chain, based on previous CIFOR research (KnowFor project)
  - adoption of a draft standalone policy on charcoal production and trade
- [new project starting 2017 on charcoal and fuelwood in Congo basin]

*) Nasi R, et al. (2015) The socioeconomic and environmental impacts of wood energy value chains in Sub-Saharan Africa: a systematic map protocol. *Journal of Environmental Evidence 4(12)*

Current activities II

- Collaboration with Korea (KFRI/NiFoS)
  - **Socio-economic and environmental benefits of bioenergy production on degraded land in Indonesia**
    - Exploring potential to utilise degraded land for bioenergy production
    - Reviewing policies, land availability, species suitability, potential productivity – opportunities and challenges
    - Establishing research/demo trial of key bioenergy species (trees not herbaceous plants) in degraded peatland in C Kalimantan with community involvement
    - Opportunity to scaling up these activities and linking to restoration of degraded land via bioenergy production and planting
    - Stakeholder engagement and capacity building: working with local partners – universities and community forest groups

Current activities III
Developing a charcoal production and trade framework for Zambia

- funded by Finnish Embassy
- focus on developing a national framework for charcoal production and trade in Zambia
  - *provide additional support to the Zambian Government in its effort to develop wood-based energy management frameworks under the new Forests Act No.4 of 2015*
- possible policy actions
  - *Investigate/consult and develop a local (village) level system addressing charcoal production*
    - *Use provisions of the 2015 Forests Act for community based charcoal production*
    - *Allocation of timber for charcoal production*
    - *Compensation to local communities*
    - *Charcoal producers organized*
    - *A national level framework that decriminalizes charcoal production and trade*

publication *"Dynamics of the charcoal and indigenous timber trade in Zambia: A scoping study in Eastern, Northern and Northwestern provinces"*

Opportunities for sustainable biomass production from degraded landscapes…

Q: How can sustainable bioenergy be developed to avoid the foods vs. fuel trap with alternative feedstocks while restoring degraded landscapes?

- Linkages between bioenergy from degraded landscapes and SDGs
- Key issues associated to bioenergy
- Bioenergy from degraded landscapes as a solution
- Potentials to develop bioenergy in degraded land in Indonesia

Photo credit: Burman Bioenergy , Australia

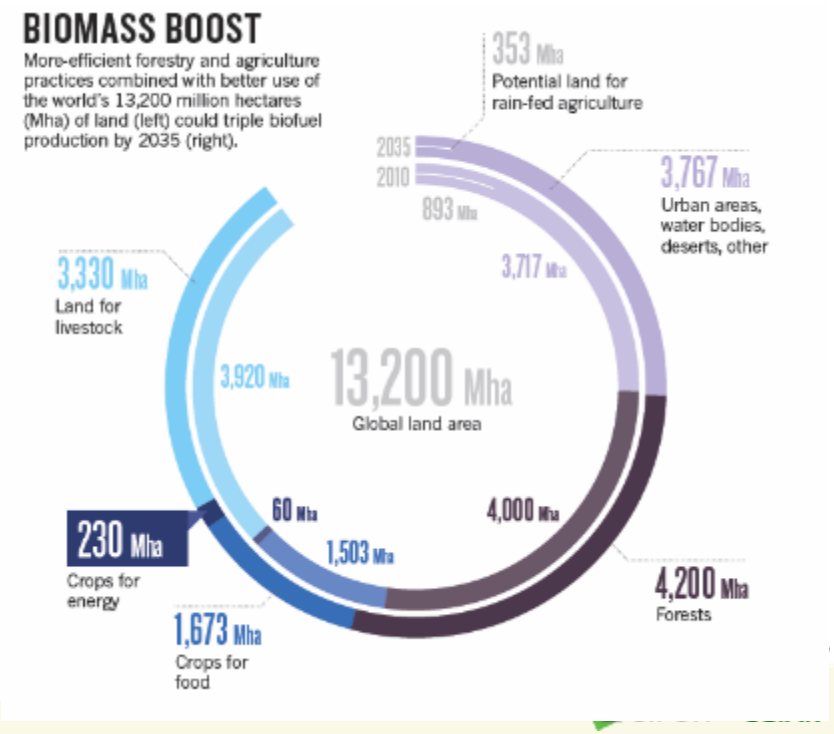
Key issues associated with bioenergy

- Biofuel feedstocks are currently produced mostly on fertile agricultural land
- Food, energy and environment trilemma
  - how to best integrate all biomass resources in a win-win relationship
- Land access/ tenure
  - Potential displacement of small farmers/rural communities via big producers
- Research and development
  - Greater understanding is required

Biomass production from degraded landscapes

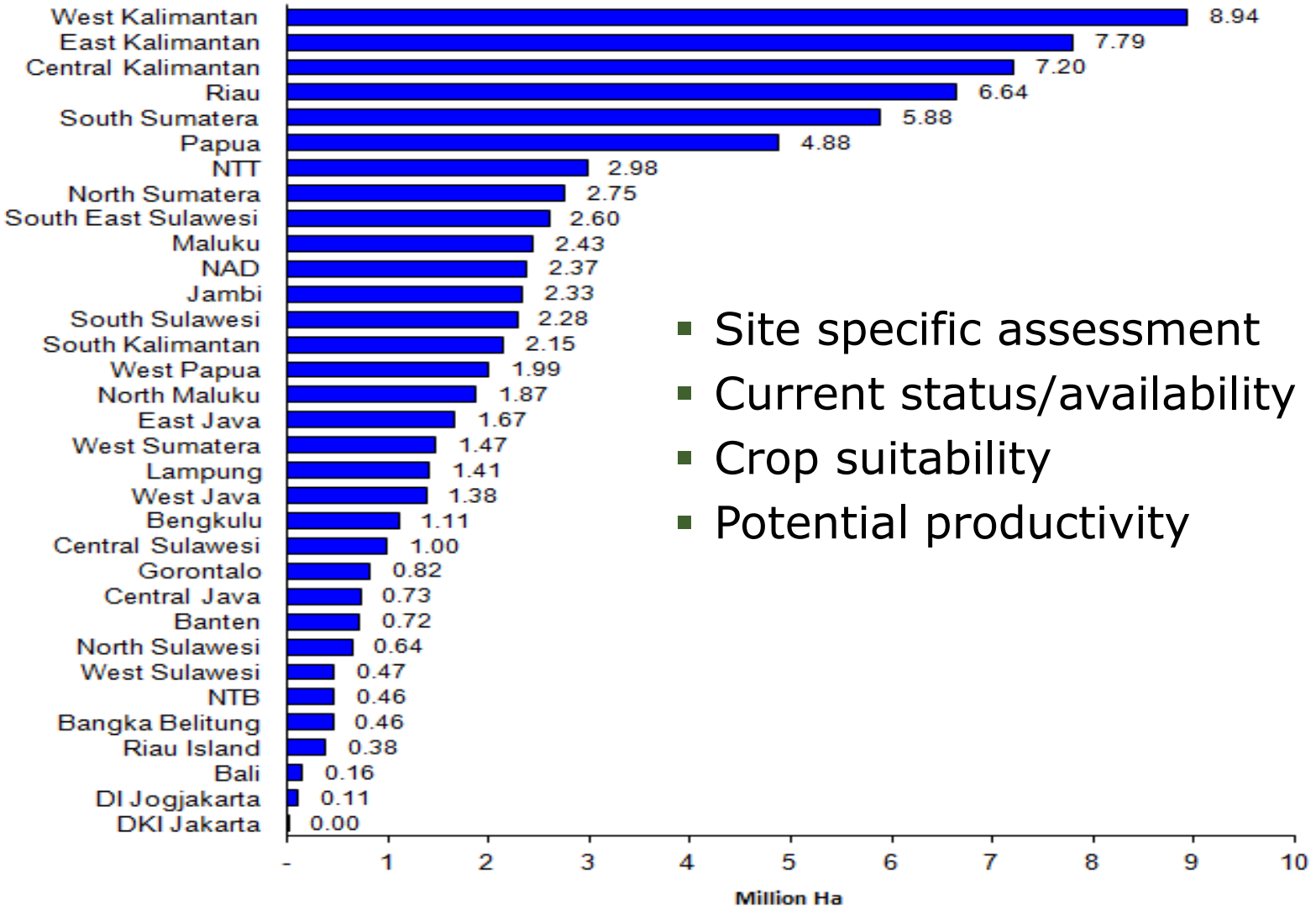
Provides win-win solution to restore land while producing sustainable bioenergy

- Avoids conflicts between food vs fuel
- Restore the degraded land
- Help to limit global warming
- Create jobs in rural areas
- Improve energy security



Kopetz, 2013 Nature

Degraded land in Indonesia



- Site specific assessment
- Current status/availability
- Crop suitability
- Potential productivity

Source: *Critical Areas Map of Forestry Planning Agency/ICCC, 2014*

The way forward I…

- Identification/delineation of degraded and/or abandoned land suitable for energy crops
  - Clear definition of degraded land, tenure, existing use, yield
- Engagement of all stakeholders at early stage
- Research and development
  - Right trees in the right place, silviculture, management etc.
- No bioenergy crops in food production areas / no conversion of natural forests for bioenergy plantings…

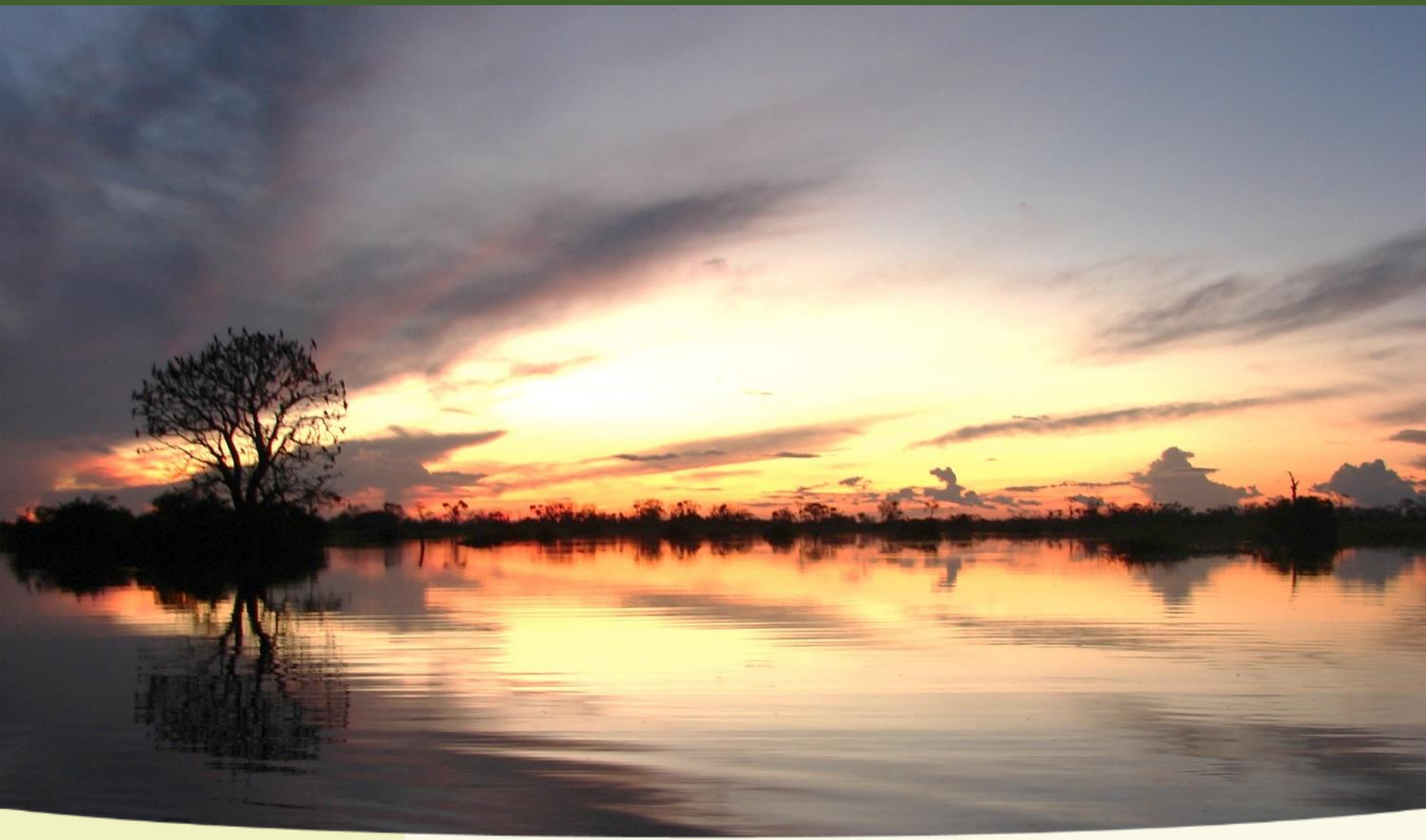
The way forward II
Forests, Trees and Agroforestry

- analysis of current status of bioenergy types, their benefits and utilization
  - e.g. bamboo biomass energy and bamboo biomass gasification, with INBAR
- analysis of international/national drivers of bioenergy development
  - understand how markets and standards (e.g. EU Renewable Energy Directive) affect land allocation to bioenergy production
- assessing potential of bioenergy production on degraded land
- analysis of bioenergy impact on social and environmental outcomes (e.g. health, poverty, migration, gender, biodiversity)
  - support equitable, sustainable energy generation, e.g. with INBAR, of community smallholder bamboo biomass energy production systems for charcoal and electricity production
  - analysis of integrated food energy systems
- …

The way forward III
Forests, Trees and Agroforestry

- …
- analysis of demand and supply, costs, social and environmental impacts, carbon footprints, synergies/trade-offs with food production and variation by world region, feedstock types, and scale of bioenergy production.
  - analysis of how bioenergy extraction links to landscape configuration, as people's practices of wood extraction depend on a landscape, but also shape it.
- assessment of how future energy developments may affect the role of biofuels, retaining flexibility to include new developments (e.g. lignocellulosic fuels) and how they may benefit stakeholders

Methods: bioeconomic modeling, field- scale comparative analysis (e.g. life cycle analysis) and political economy studies



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