

REDD+

NAMA

Emission reduction

Efficiency

Fairness

Sustainable Agriculture

World Market





Forest: C accounting



Forest institutions

Forest: tree cover

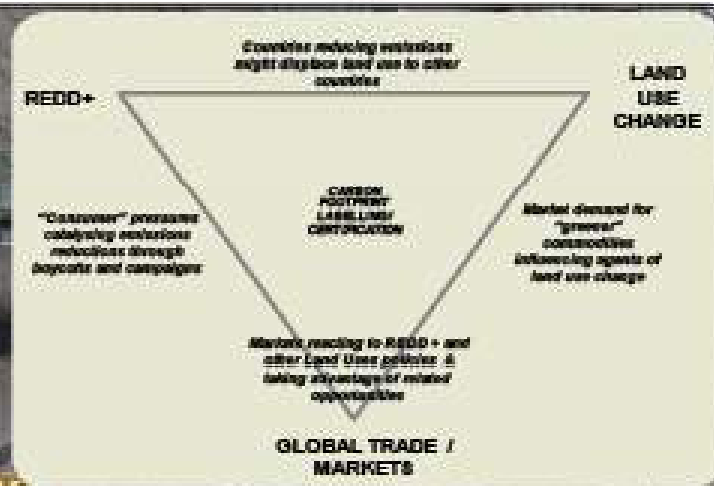


Partnership for the Tropical Forest Margins

Emissions Embodied in Trade (EET) and Land use in Tropical Forest Margins

Increasing proportions of land use change responsible for emissions from deforestation, forest degradation and agriculture in developing countries is associated with commodities meant for export, hence the concept of Emissions Embodied in Trade-EET.

As many corporations, countries and consumers embrace carbon footprint labelling and advocate for "greener" commodities, there is potential for reducing emissions from land use change in the



<http://ec.europa.eu/environment/integration/research/newsalert/pdf/248na1.pdf>

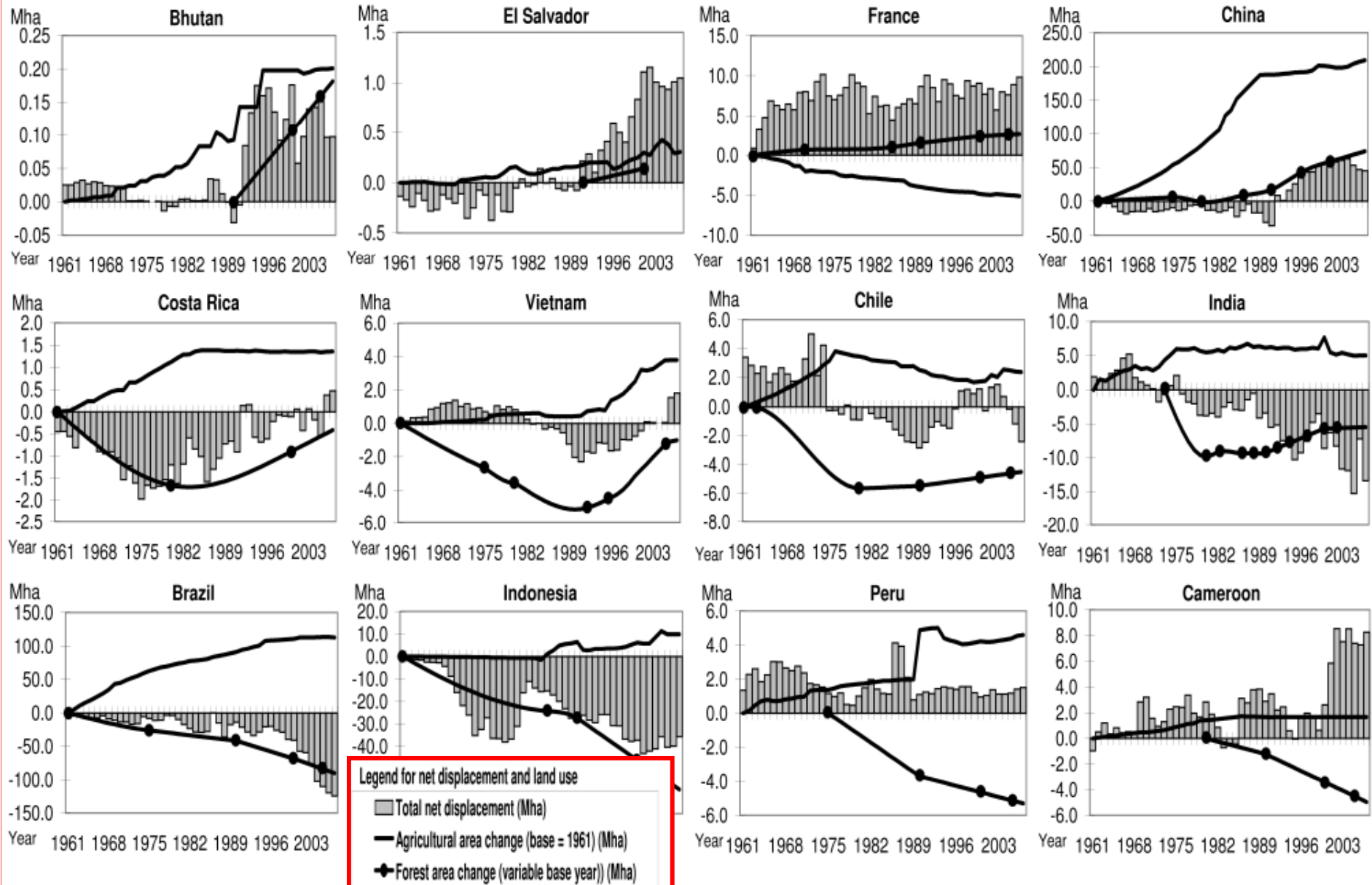
of land use agents and influence emissions; and (c) the policy implications that result from EET.

Main findings

Implications

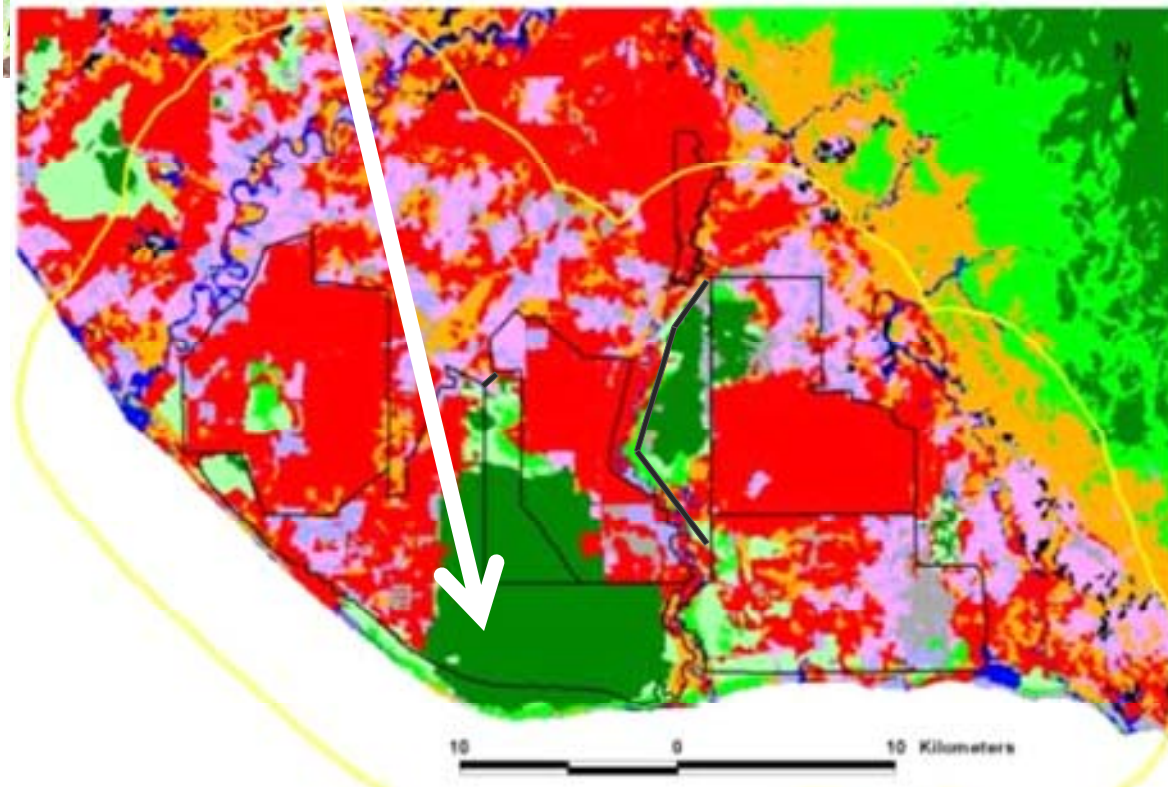
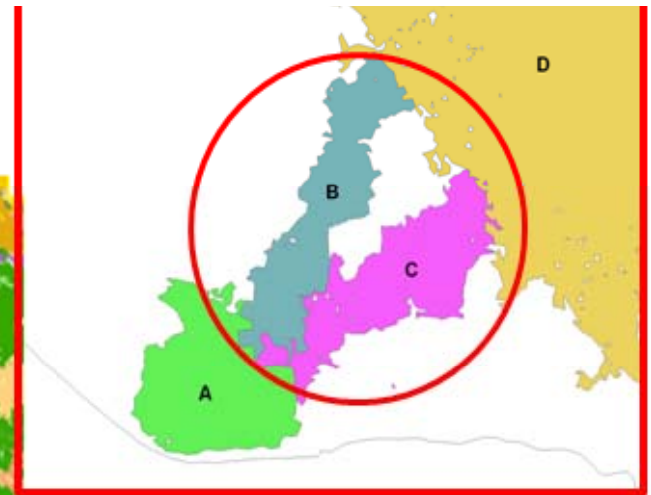
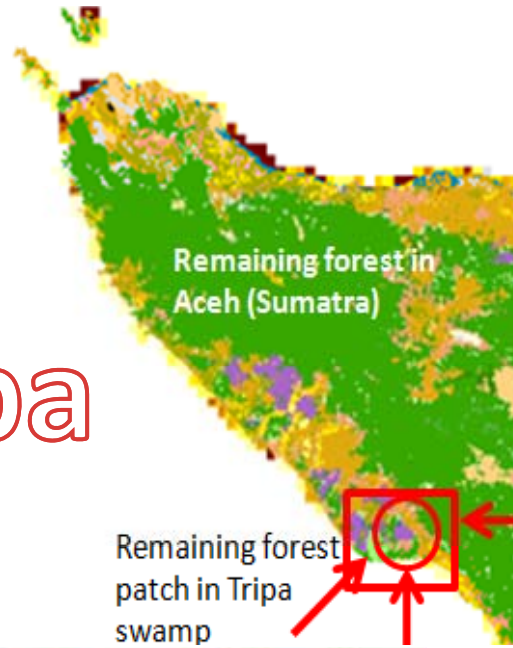
Meyfroidt P, Rudel TK, Lambin EF (2010) Forest transitions, trade and the global displacement of land use. Proceedings of the National Academy of Sciences USA, XXXX

A Net displacement and land use



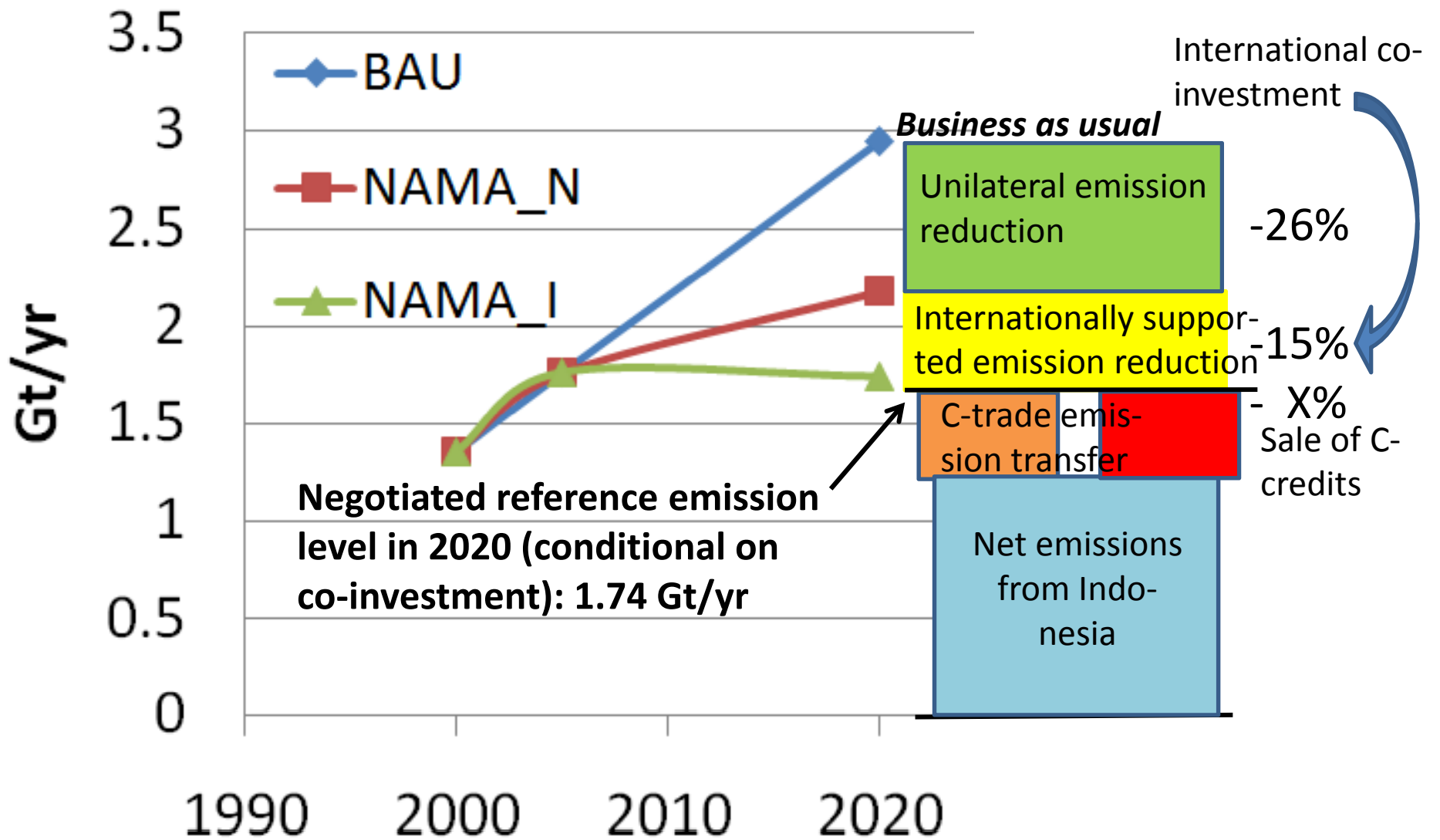


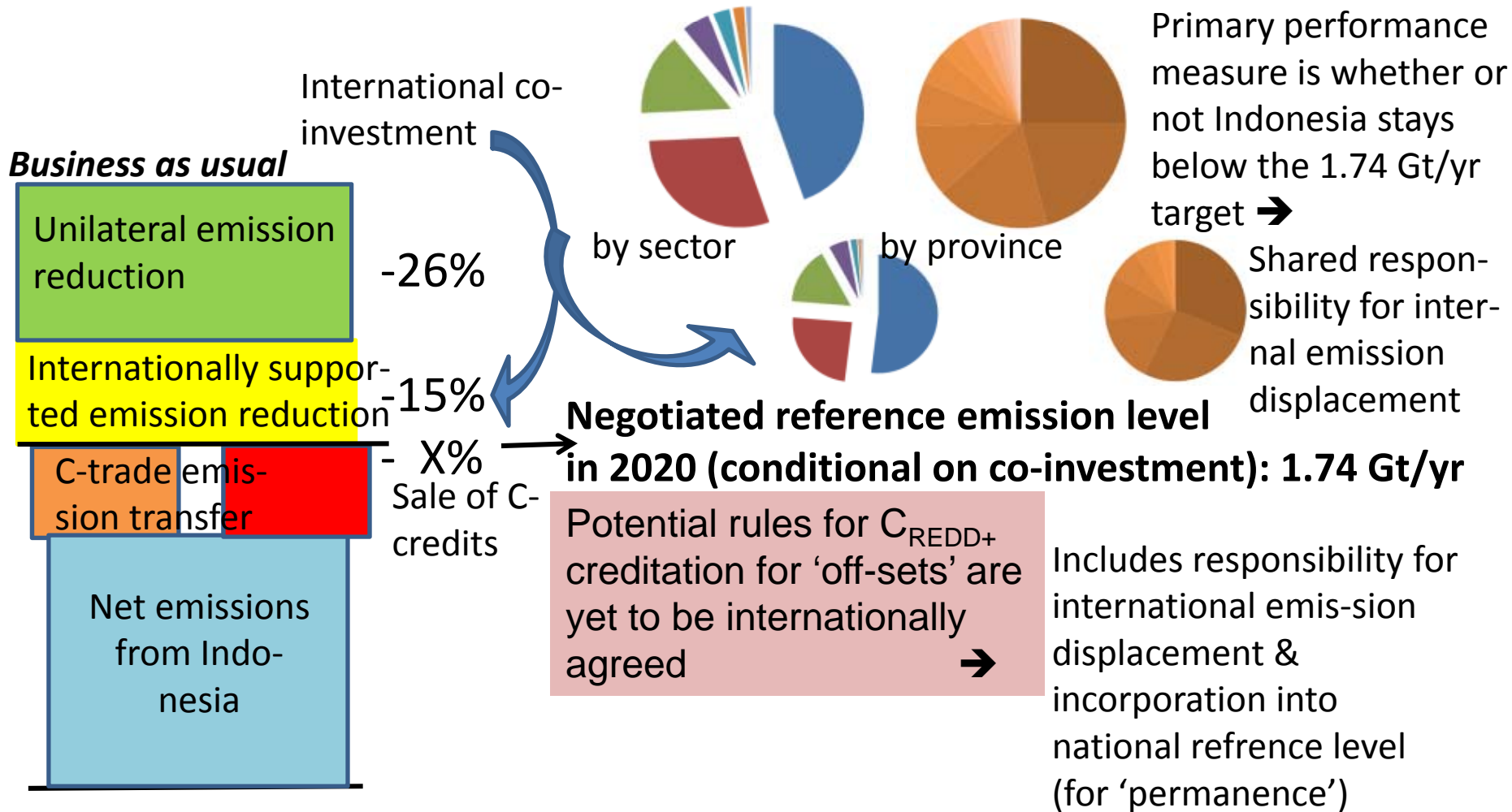
Tripa



Legend

- Agroforest
- Cleared land
- Cloud/shadow
- Crops
- Disturbed forest
- Disturbed swamp forest
- Shrubs and grass**
- Oil palm
- Settlement
- Undisturbed forest
- Undisturbed swamp forest
- Water body
- Tripa study area boundary
- Plantation concession rights (HGU)





Globally Appropriate Mitigation Actions (GAMA)
does sum of NAMA's

add up to GAMA?

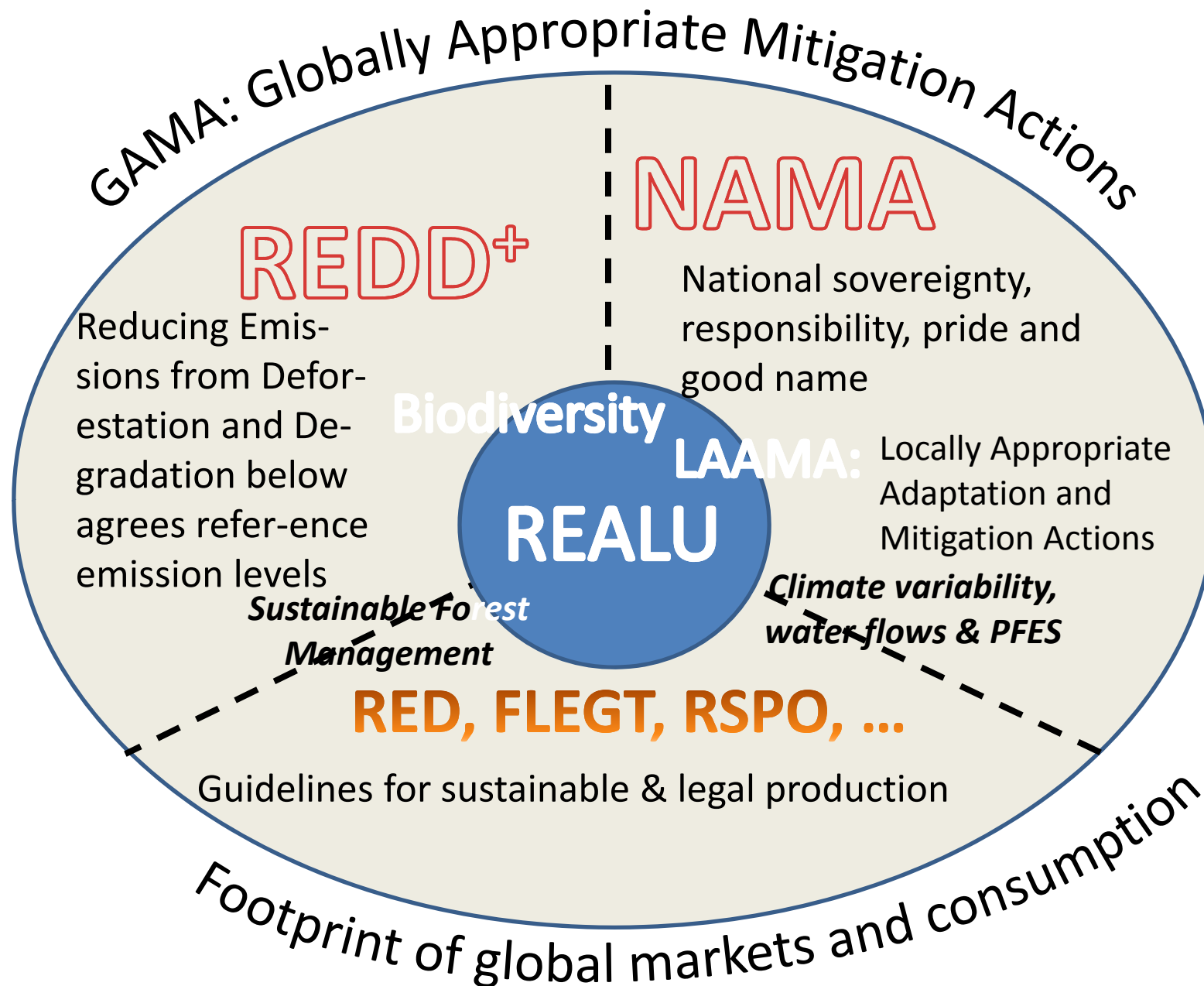
Nationally Appropriate Mitigation Actions (NAMA)

are NAMA's based
on LAAMA's?

Locally Appropriate Adaptation & Mitigation Actions
(LAAMA)

Landscape
approaches to
adaptation +
mitigation

Agreements between all countries of the world, seeking consensus



Self-regulation of business entities and voluntary action of global citizens



Agent-based modelling workshop/retreat WP6

15-18 April 2011 Cocksdoorp, Texel,
the Netherlands

Agent-based models: can they throw new light on

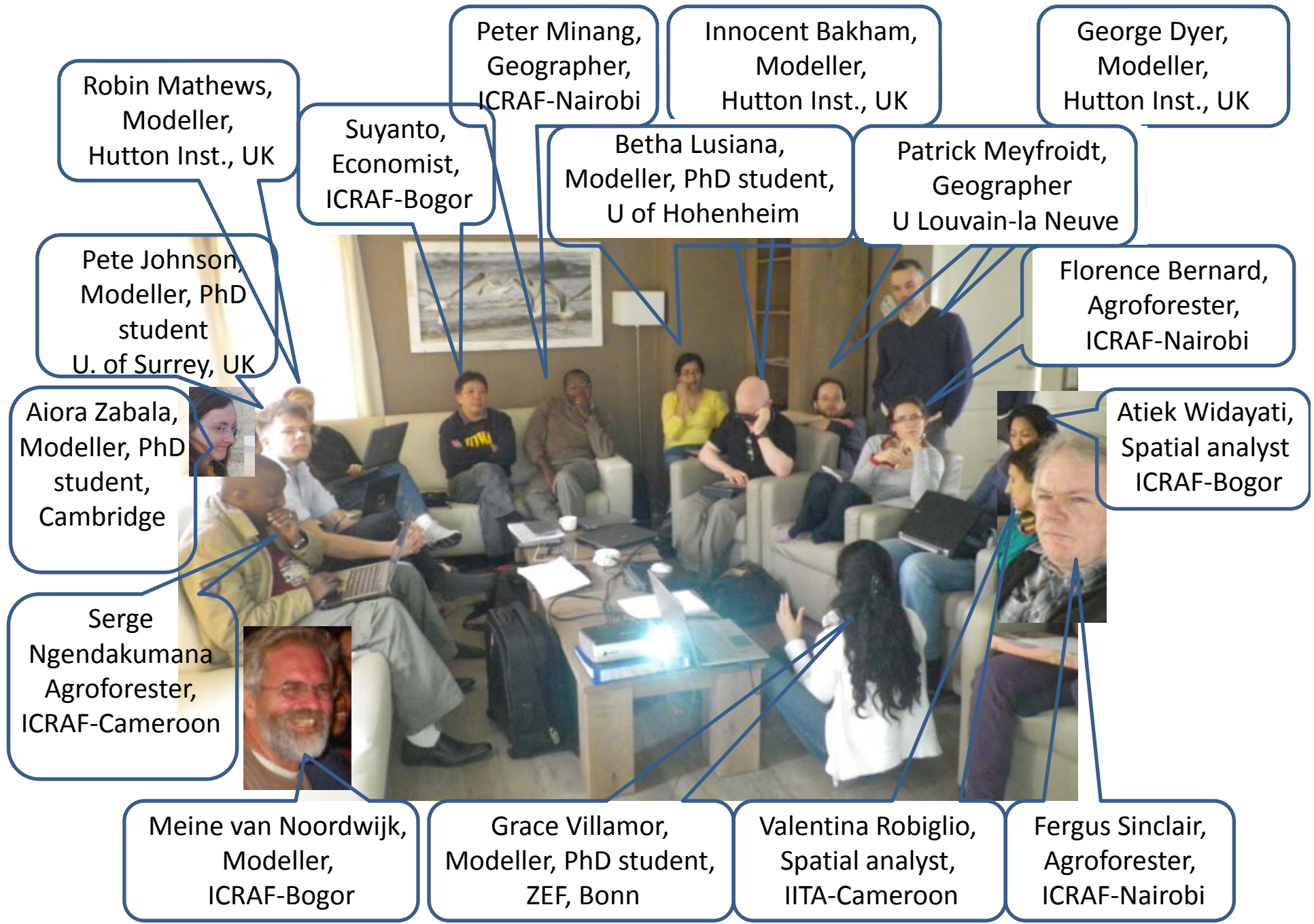
International
forest-related
policy &
REDD+



Livelihood transition and land
use change choices

REDD+ Negotia-
tion support systems

the way 'systems'
emerge from agency?



Robin Mathews,
Modeller,
Hutton Inst., UK

Peter Minang,
Geographer,
ICRAF-Nairobi

Innocent Bakham,
Modeller,
Hutton Inst., UK

George Dyer,
Modeller,
Hutton Inst., UK

Suyanto,
Economist,
ICRAF-Bogor

Betha Lusiana,
Modeller, PhD student,
U of Hohenheim

Patrick Meyfroidt,
Geographer
U Louvain-la Neuve

Pete Johnson,
Modeller, PhD
student
U. of Surrey, UK

Florence Bernard,
Agroforester,
ICRAF-Nairobi

Aiora Zabala,
Modeller, PhD
student,
Cambridge

Atiek Widayati,
Spatial analyst
ICRAF-Bogor

Serge
Ngendakumana
Agroforester,
ICRAF-Cameroon

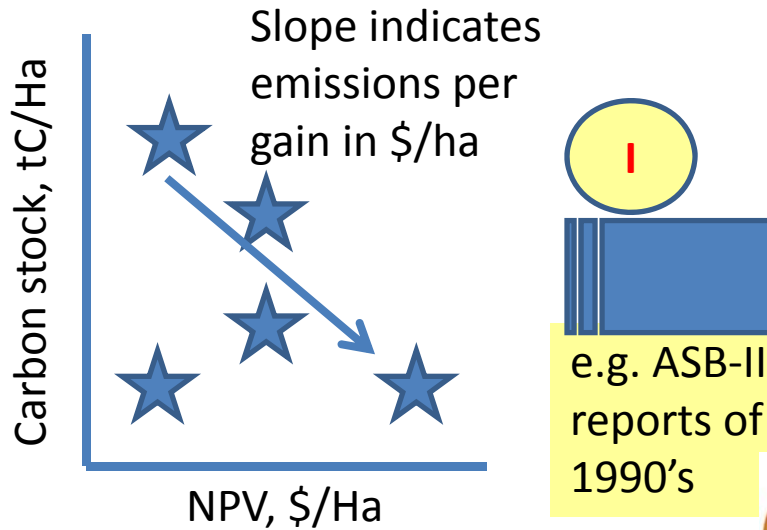
Meine van Noordwijk,
Modeller,
ICRAF-Bogor

Grace Villamor,
Modeller, PhD student,
ZEF, Bonn

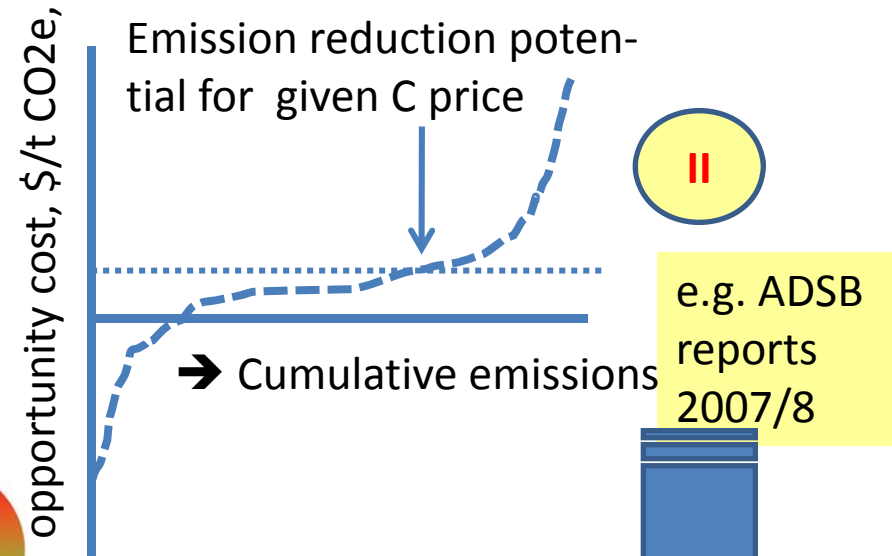
Valentina Robiglio,
Spatial analyst,
IITA-Cameroon

Fergus Sinclair,
Agroforester,
ICRAF-Nairobi

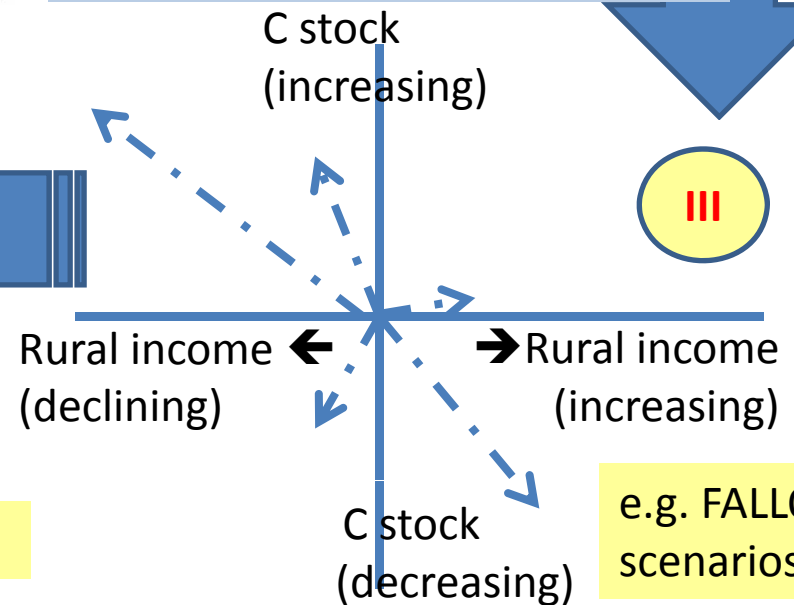
Tradeoff at land use system level



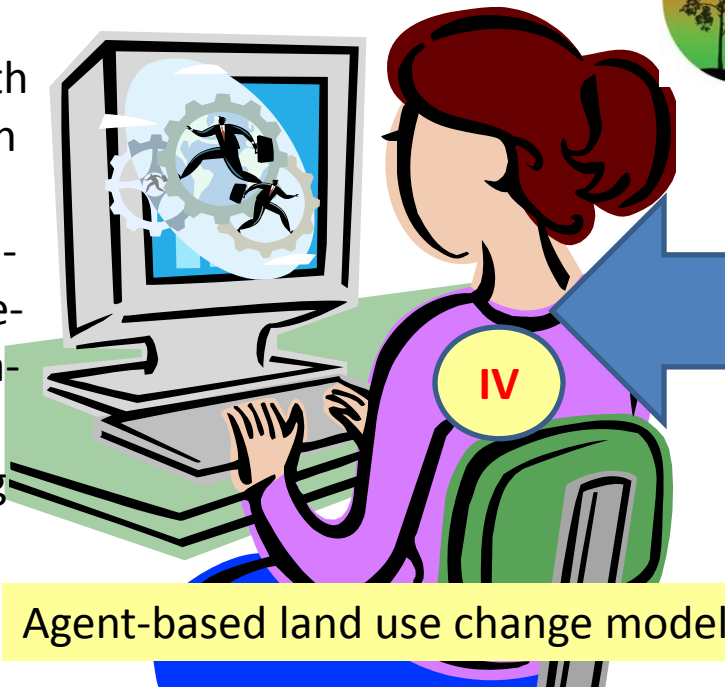
Opportunity cost at landscape scale



Dynamic land use scenario model



Agents with variation in resource base, motivation, livelihood strategies. interacting with rules & policies



Agent-based land use change model

e.g. FALLOW scenarios



Partnership for the Tropical Forest Margins



Abatement curves summarize the costs that are involved in reduction of pollution. In this case net greenhouse gas emissions, based on the volume of various types of emissions and the expected cost per unit emission reduction. Such representations support policy development, identifying an initial focus on the low-cost high-volume emission categories. Four approaches are described and compared to do such analysis for tropical forest margins in the context of Reducing Emissions from Deforestation and (forest) degradation.

The four methods, of increasing complexity and costs of data collection are appropriate in different steps along the pathway to negotiated agreements that can meet 'Free and Prior Informed Consent' standards, while reducing overall transaction costs by early warnings for cases that are unlikely to lead to mutually beneficial agreements. In early screening of potential cases, a comparison of profitability and time-averaged carbon stock of the different landuse options within an area can be used to confirm that there are no high C stock + high profitability land uses (if there are the question shifts to why these are not universally adopted) and that there generally is a tradeoff. The presence of low C stock + low profitability land uses, can direct the focus on prevention of degradation and possibilities of win-win restoration. For a

Project Information Note (PIN) this may give sufficient initial clues. In landscapes where tradeoffs are confirmed, a further quantification and spatial study of the emission pattern can use pixel-level ratios of change in C stock and profitability as basis for C price estimates ('OpCost curves'). Such curves give an indication of baseline emissions and the opportunity for economic incentives to shift away from emissions that yielded low benefits in terms of profitability increases in land use. Such information can inform Project Design Documents (PDD). For further negotiations of contracts, forward looking landscape scenarios can further support the negotiations, as they can help define the bottom-line levels of alternative livelihood provisions that will be needed to make low C emission scenarios equivalent in terms of local economy to high C stock emission business as usual scenarios. Finally, further detail on the scenarios by inclusion of agent-based variation in resources and preferences may add further detail, but for this class of methods further tests are needed to judge their predictive value and relevance in the negotiation processes.

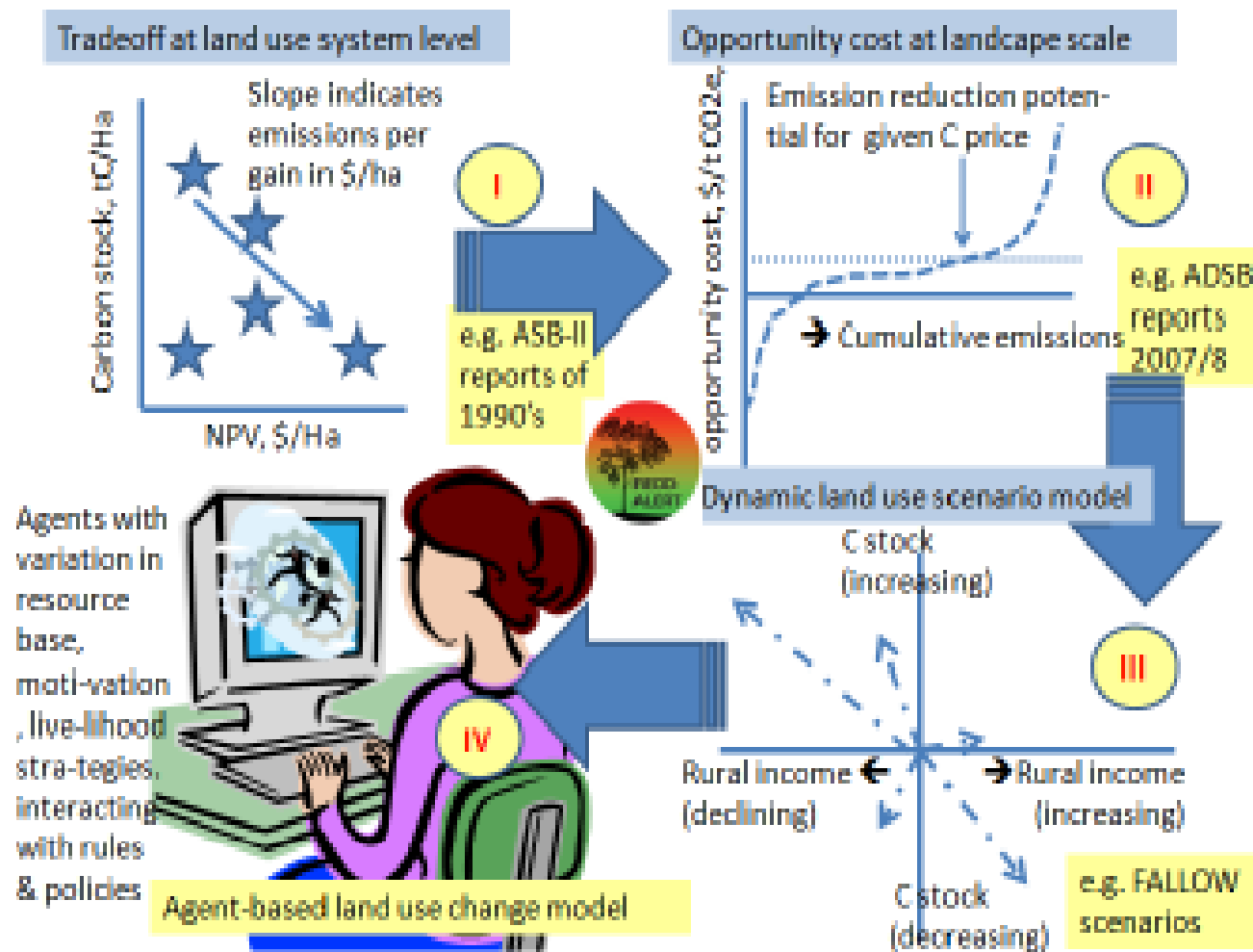
Abatement Cost Curves Relating Past Greenhouse Gas Emissions to the Economic Gains They Allowed

Four approaches are described to analyze land use change in tropical forest margins in the context of REDD'

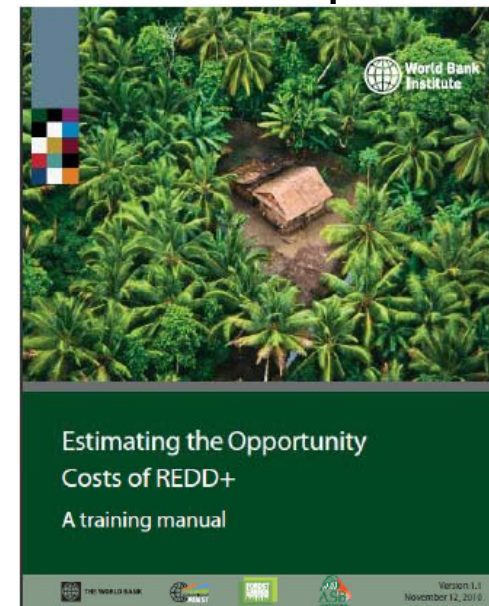
Project Report



World Agroforestry Centre



1 training manual, 1 software tool, 4 policy briefs + 2 manuscripts



Meine van Noordwijk, Sonya Dewi, Suyanto, Peter Minang, Douglas White, Valentina Robiglio, Hoang MH, Andree Ekadinata, Rachmat Mulia, Degi Harja



The international REDD⁺ debate has so far focussed on 1) the scope (RED, REDD, REDD⁺) of efforts to reduce emissions from a subset of wider land-use issues; 2) the financial incentives (\$/tCO₂e) and associated accounting and disbursement mechanisms; and 3) safeguards that local perspectives be taken into account ('free and prior informed consent') and biodiversity co-benefits be achieved. From the local perspective of stakeholders living in tropical forest margins, the REDD⁺ debate is an additional complication in an already complex relationship that they have with central governments and forest authorities. Can they make use of the REDD⁺ interest of their national government to further their livelihoods strategies and development aspirations? Or will the REDD⁺ implementation measures set them back in their conflicts over resource access? We provide a number of case studies of two high carbon emission provinces in Indonesia, the land with the highest land-based carbon emissions. Conflicts over land are shown to be aggravated by a large REDD⁺ pilot project in Central Kalimantan, but new forms of accommodating forest-edge villages in stabilising forest margins through 'village-forest' agreements in Jambi are promising to become a major part of the solution. A deeper analysis of the community-level motivation for resource protection and household decisions about preferred land uses revealed the importance of social context in land use decisions. The model representation of 'agents' interacting in dynamic land-use models have not so far captured the richness of influences and 'bounded rationality' beyond household level economic optimisation. A nesting of models is proposed that will describe interactions between natural, social, human, financial and physical capital at multiple scales, with the primary cross-scale interactions restricted to the various capital types, and the cross-capital interactions restricted to an identical scale. A stakeholder analysis of REDD⁺ perspectives at provincial scale will be used in such models.

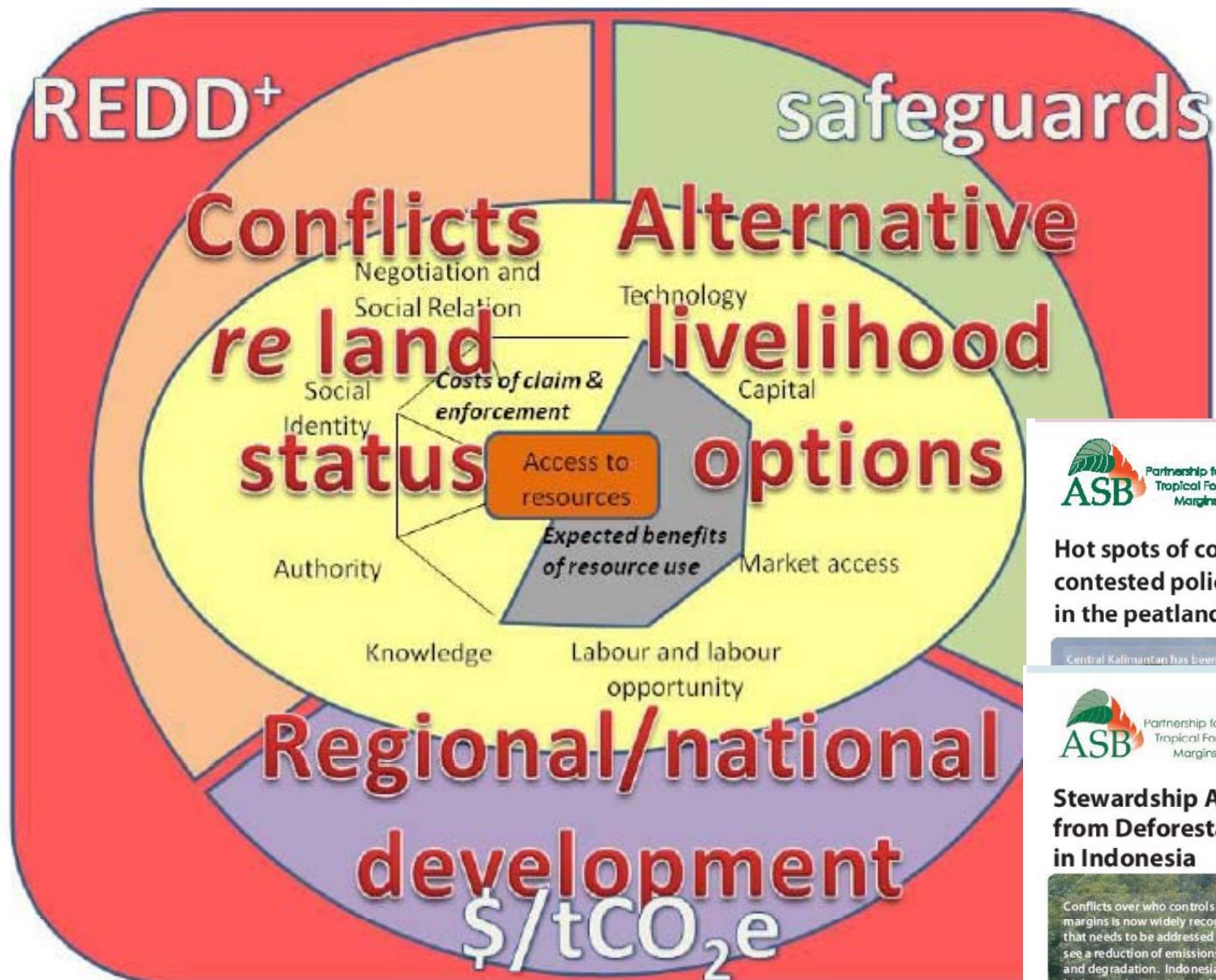
Local perspectives on REDD

In comparison with those at the international negotiation tables and their representation in quantitative scenario models

Conflicts over land are aggravated by a large REDD⁺ pilot project; new forms of 'village forest' are to be part of the solution

Project Report





2 policy briefs +
6 manuscripts



Policybrief

21

**Hot spots of confusion:
contested policies and competing carbon claims
in the peatlands of Central Kalimantan, Indonesia**

Central Kalimantan has been selected as the



Policybrief

18

**Stewardship Agreements to Reduce Emissions
from Deforestation and Degradation (REDD)
in Indonesia**

Conflicts over who controls the forests and forest margins is now widely recognized as a key issue that needs to be addressed if the world wants to see a reduction of emissions from deforestation and degradation. Indonesia, the country with the highest carbon emissions from change in its forest cover, is now expressing global leadership in

Meine van Noordwijk, Gamma Galudra, Ratna Akief-nawati, Grace B. Villamor, Herry Purnomo, Suyanto

2011



Partnership for the
Tropical Forest
Margins



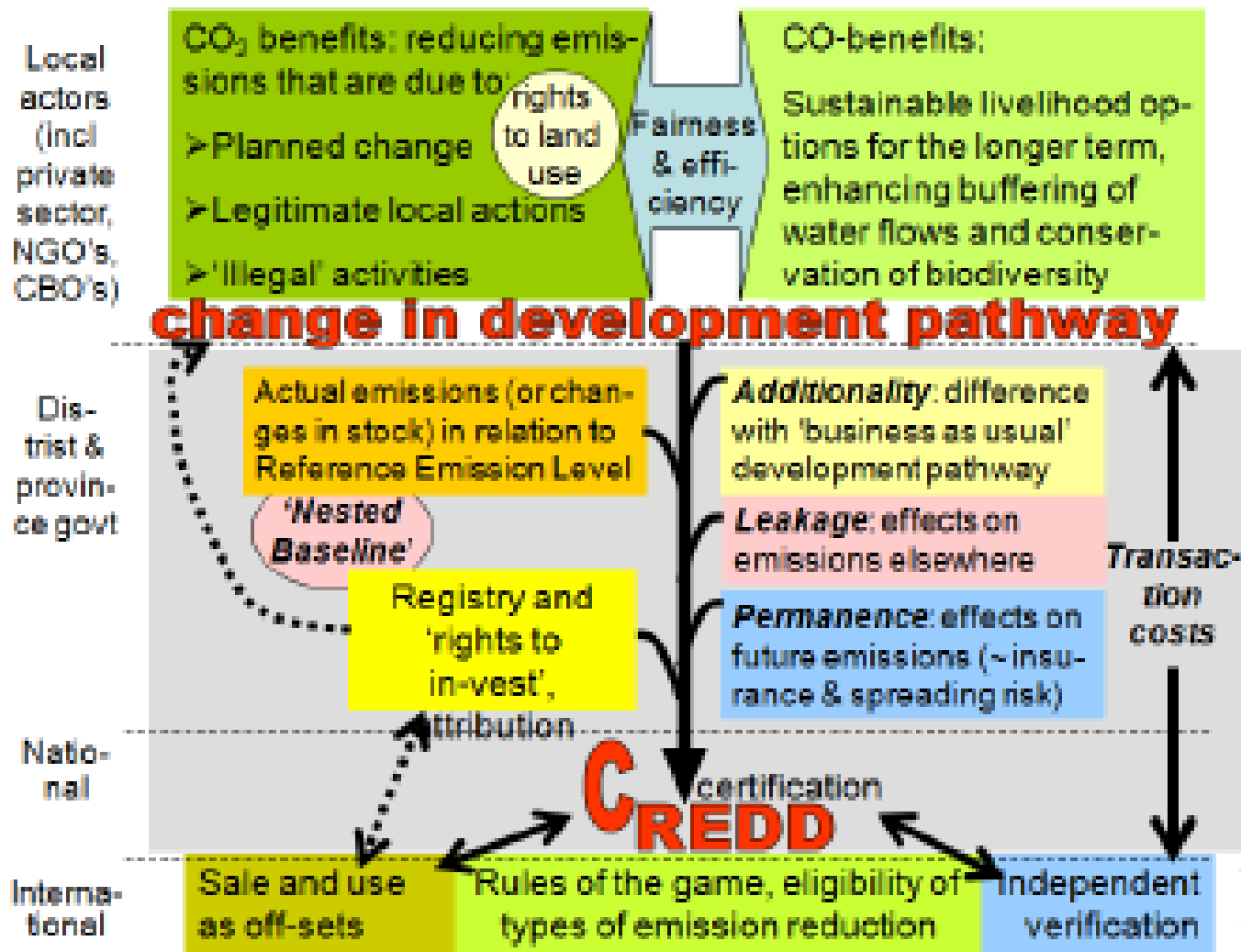
Local implementation of efforts to reduce emissions from deforestation and forest degradation (REDD) can be analyzed to be part of a 'value chain'. The primary 'service' is a direct reduction of emissions and a medium-to-long term reorientation of development pathways towards the maintenance of high-carbon-stock landscapes. The ultimate 'service' for which there may be a market is a 'credible and creditable' quantification and documentation of emission reduction compared to an agreed (negotiated) baseline (additionality beyond reference emission levels) after corrections for leakage effects and risks of non-permanence. The steps of the value chain beyond the landscape where emission reduction takes place involve subnational + national + international levels that currently still have to operationalize rules that allow the value chain to work. In this process an external drive for efficiency (low cost emission reduction) interacts with the need for fairness (supporting conservation commitment, avoiding perverse incentives). The development of operational subnational REDD implementation rules involves a learning curve for all involved, the local stakeholders as well as the potential investors, regulators and facilitators of the process. Learning by the stakeholders might in future be facilitated by formal research results, but a more direct 'learning by doing' is needed at this stage. We report the development and use of a research tool FERMA for analysis of fairness and efficiency along REDD value chains, and its initial use in Indonesia and Peru. For Jambi province in Indonesia we also report further steps to engage potential REDD stakeholders in the design of subnational implementation mechanisms, including discussions with 'Orang Rimba' as the local forest dwellers are indicated. A simulation model that quantifies distributional effects (equity) complements the 'perceived fairness' perspective that was expressed in the various focus group discussions. Vietnam is considering the coupling of REDD funding and an existing scheme of payment for watershed functions. This approach may reduce transaction costs, but brings its own challenges to both fairness and efficiency dimensions, as discussed here.

Stakeholder Perspectives on 'Fair and Efficient' Benefit Distribution Along the C_{redd} Value Chain

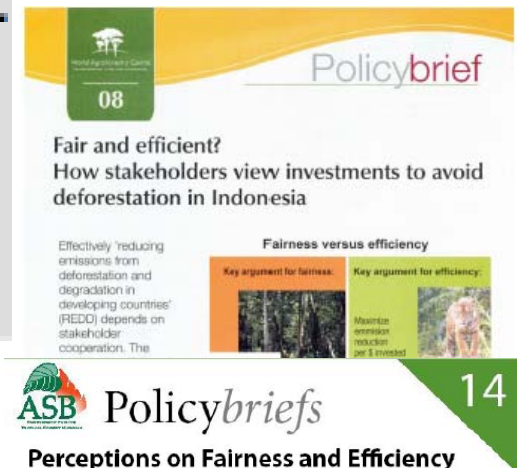
Project Report

External drive for **efficiency** (low cost emission reduction) interacts with the need for **fairness** (avoiding perverse incentives)





2 policy briefs +
1 tool description +
2 manuscripts

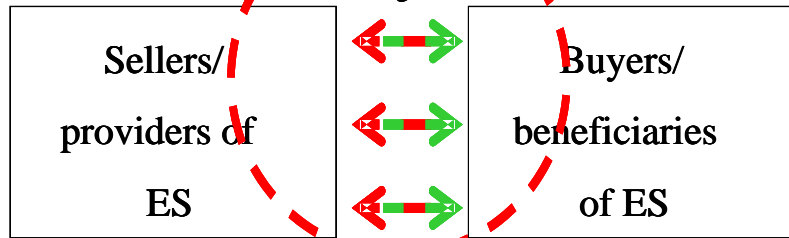


Meine van Noordwijk, Suyanto, Sandra Velarde, Herry Purnomo, D.T Hoan, Hoang, M.H.



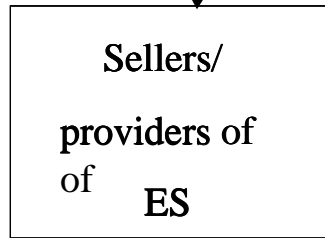
Local level National level International

*opportunity cost +
local benefit*



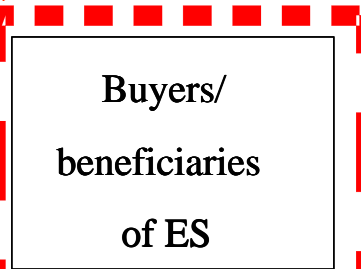
Value added by local investment funding and K-based risk mitigation

Local C_{redd} price



Value added by statistical risk buffer-ing, quality control & international legitimacy

National C_{redd} price



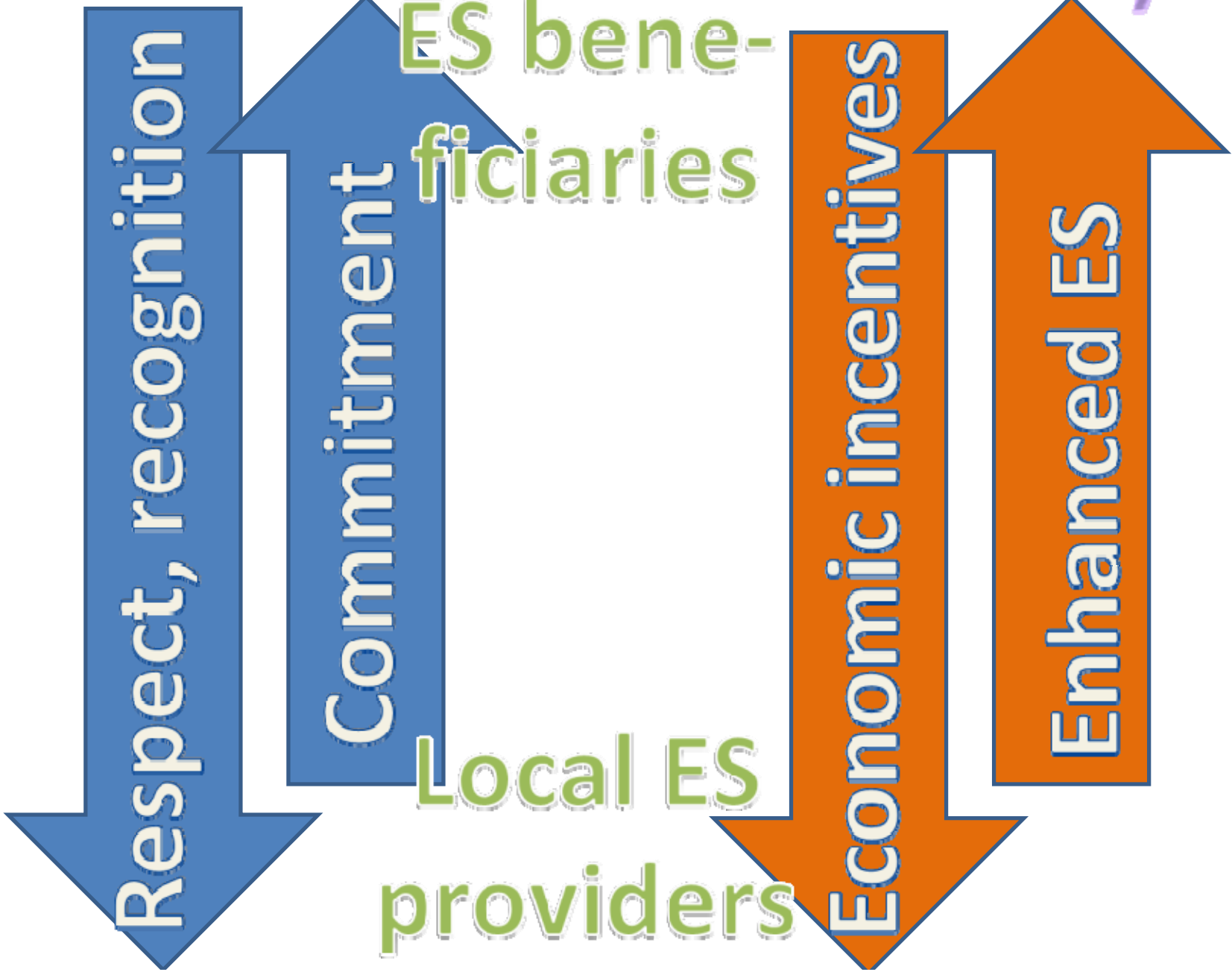
transaction cost component 1

transaction cost component 2

International C_{redd} price

IFCA, 2007

Fairness & Efficiency



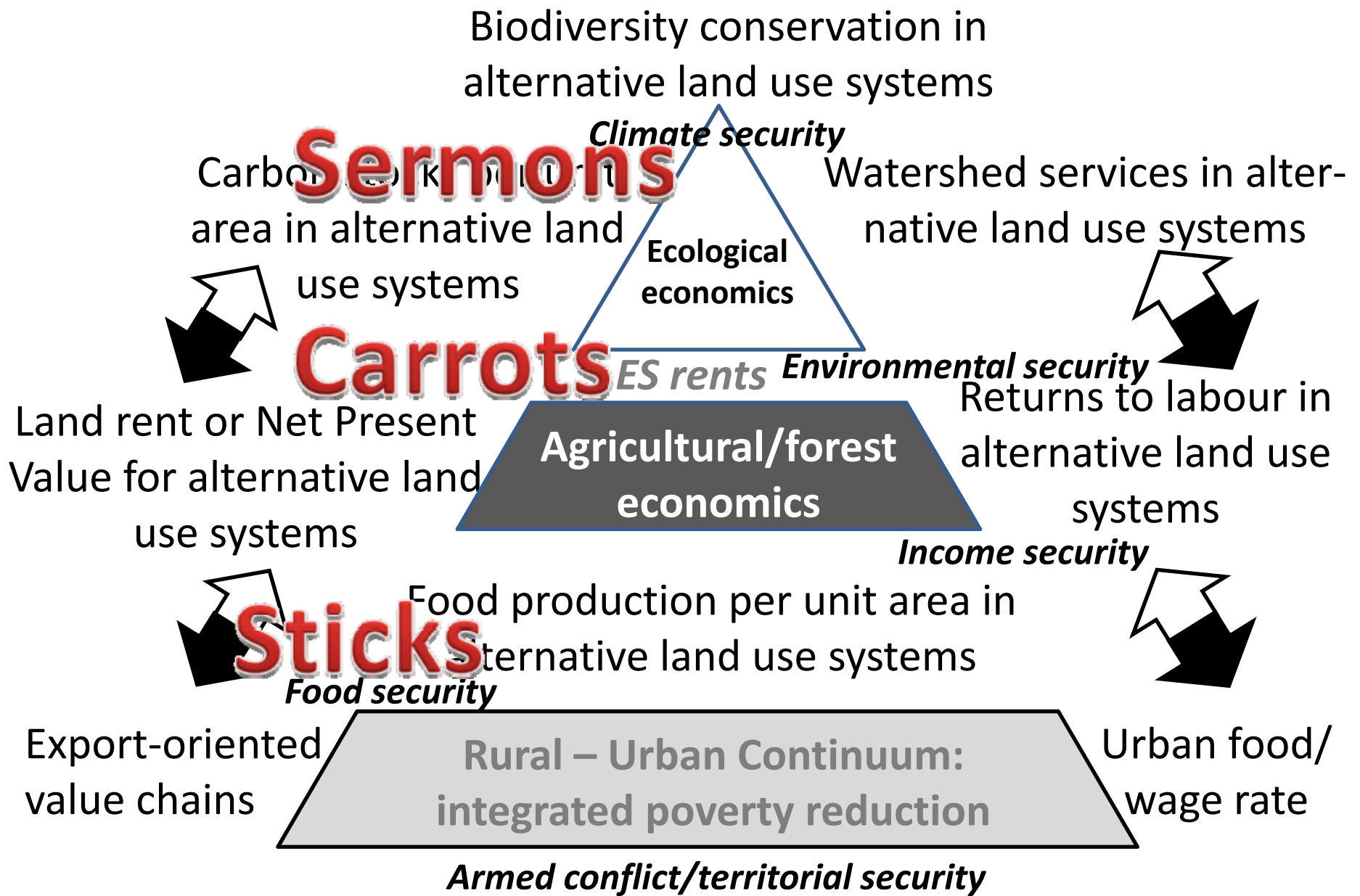
ES beneficiaries

Local ES providers

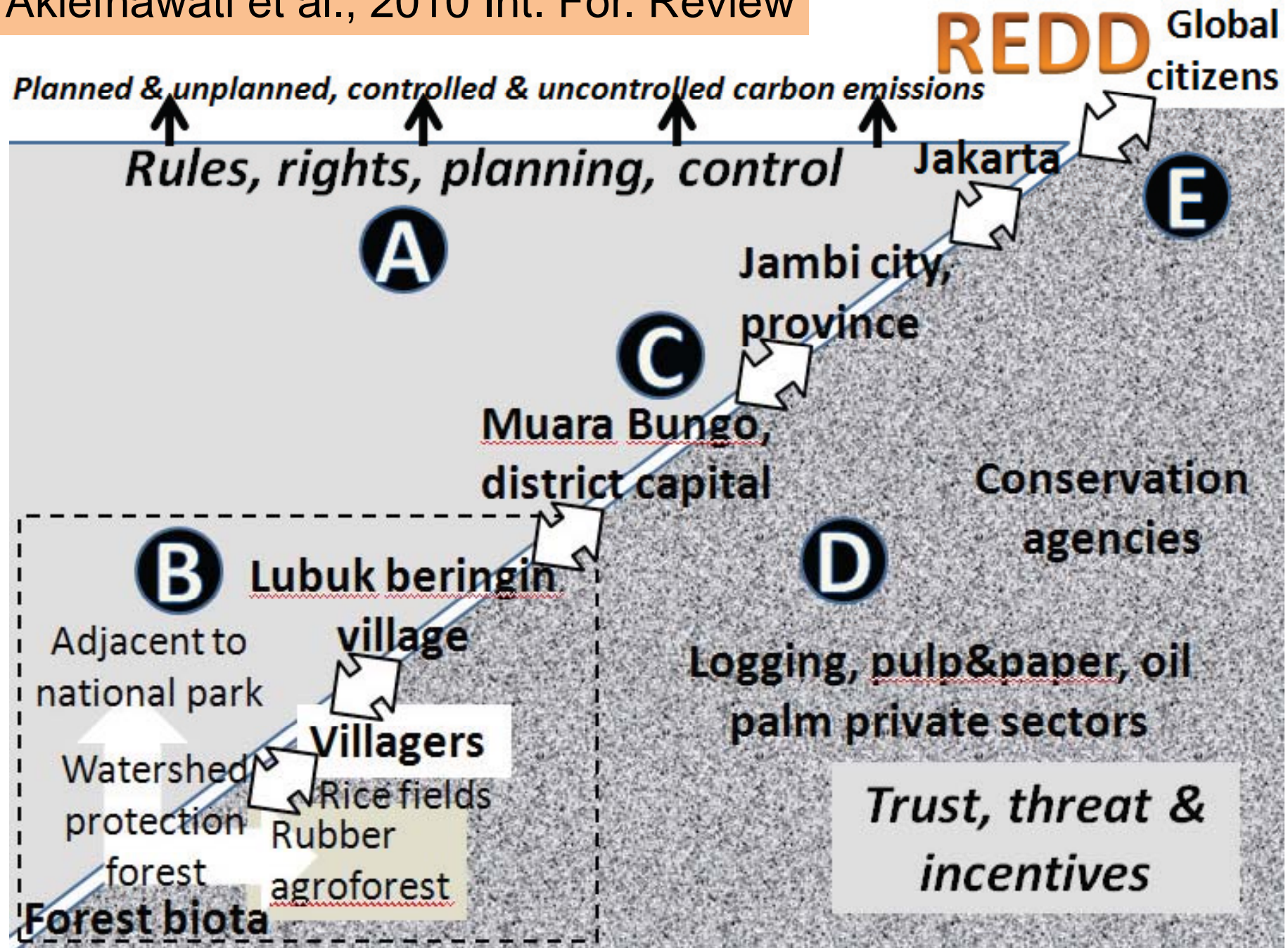
REDD⁺ vs NAMA

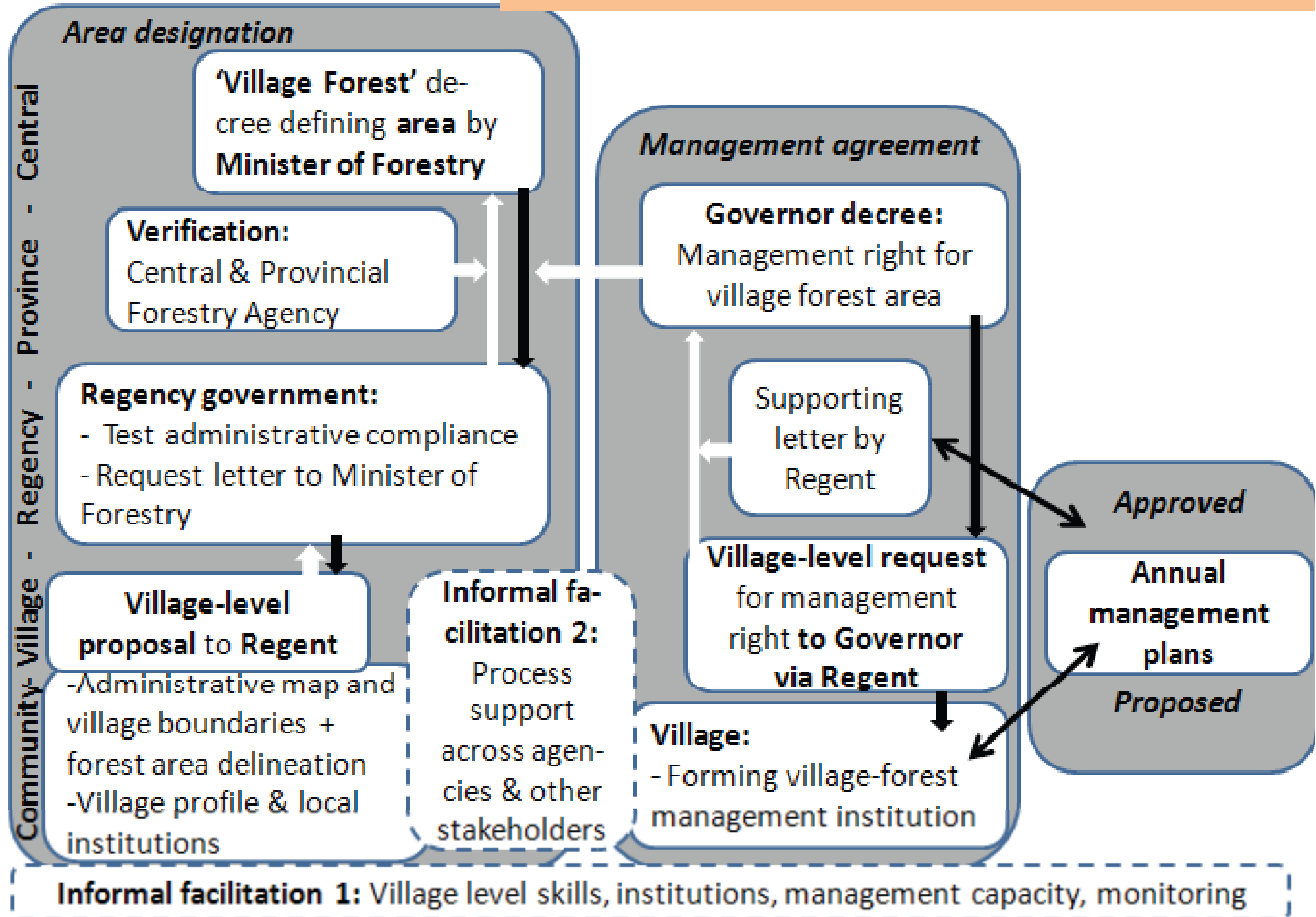
Integration LAAMA// REDD⁺+NAMA/ GAMA

- Paralell track in Bali → Cancun negotiations
- Different negotiators, stakeholders, politics
- Resistance of REDD⁺ community to be 'nested' in NAMA
- Insistance on separate MRV & institutions...
- In Indonesia 'harmonization': common MRV, 26+15%NAMA as basis for all; National Planning Agency in key role
- REDD⁺ implementation *via* local governments

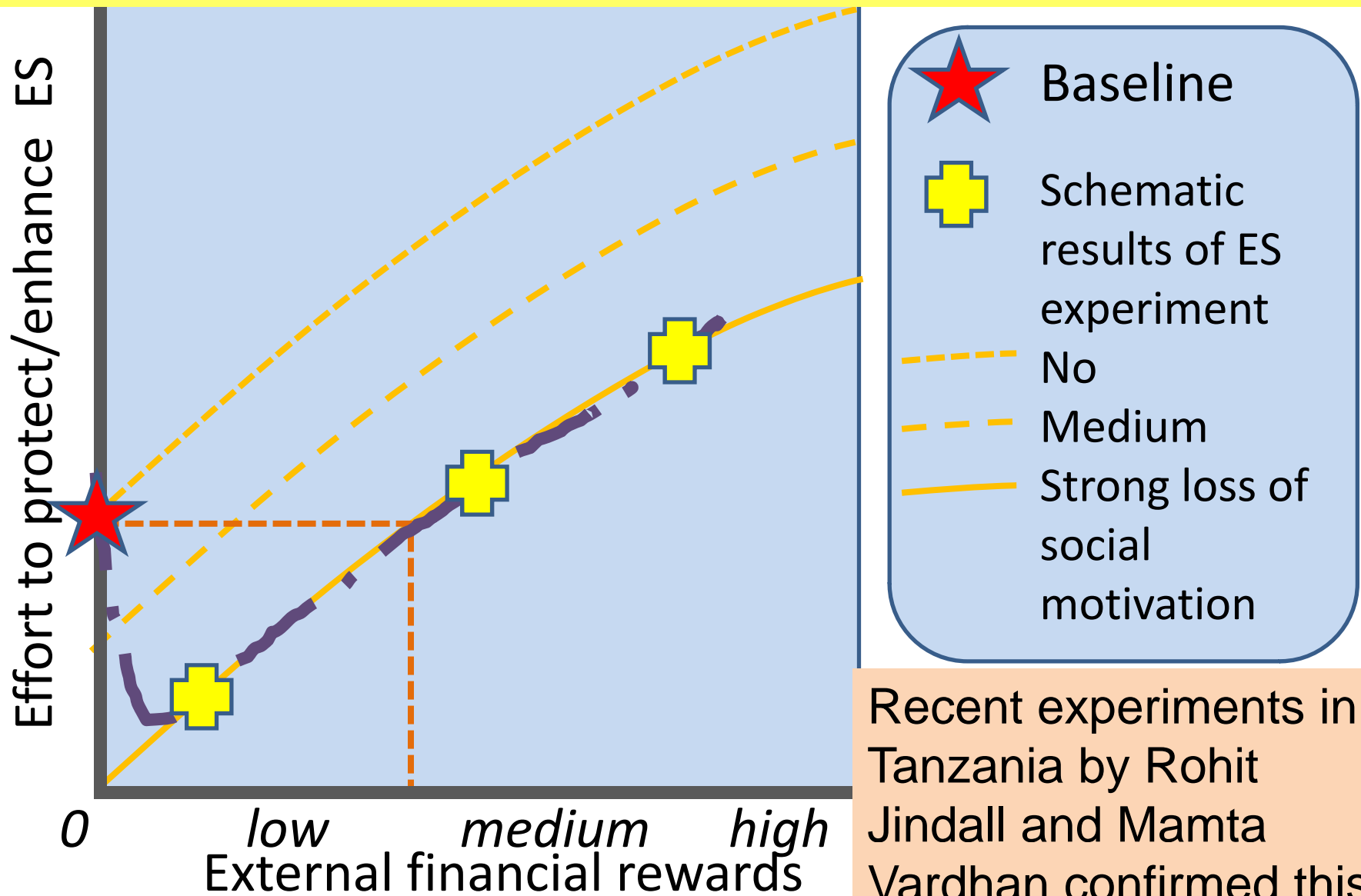


A tentative hierarchy of national policy objectives, influencing the way climate change can enter into national policy debates (Minang et al., under review)





Hypothesis of PES replacing social motivation to protect ES



Recent experiments in Tanzania by Rohit Jindall and Mamta Vardhan confirmed this in a village setting

Price condition for inter-generational increase in altruism:

$$\left(\begin{array}{c} \text{Individual} \\ \text{Benefits -} \\ \text{Costs} \end{array} \right) + \left(\begin{array}{c} \text{Social} \\ \text{cohe-} \\ \text{sion} \end{array} \right) \left(\begin{array}{c} \text{Group} \\ \text{Benefits -} \\ \text{Costs} \end{array} \right) > 0$$

Loss of social cohesion ('relatedness') term implies shift from group to individual 'benefit – cost' considerations