

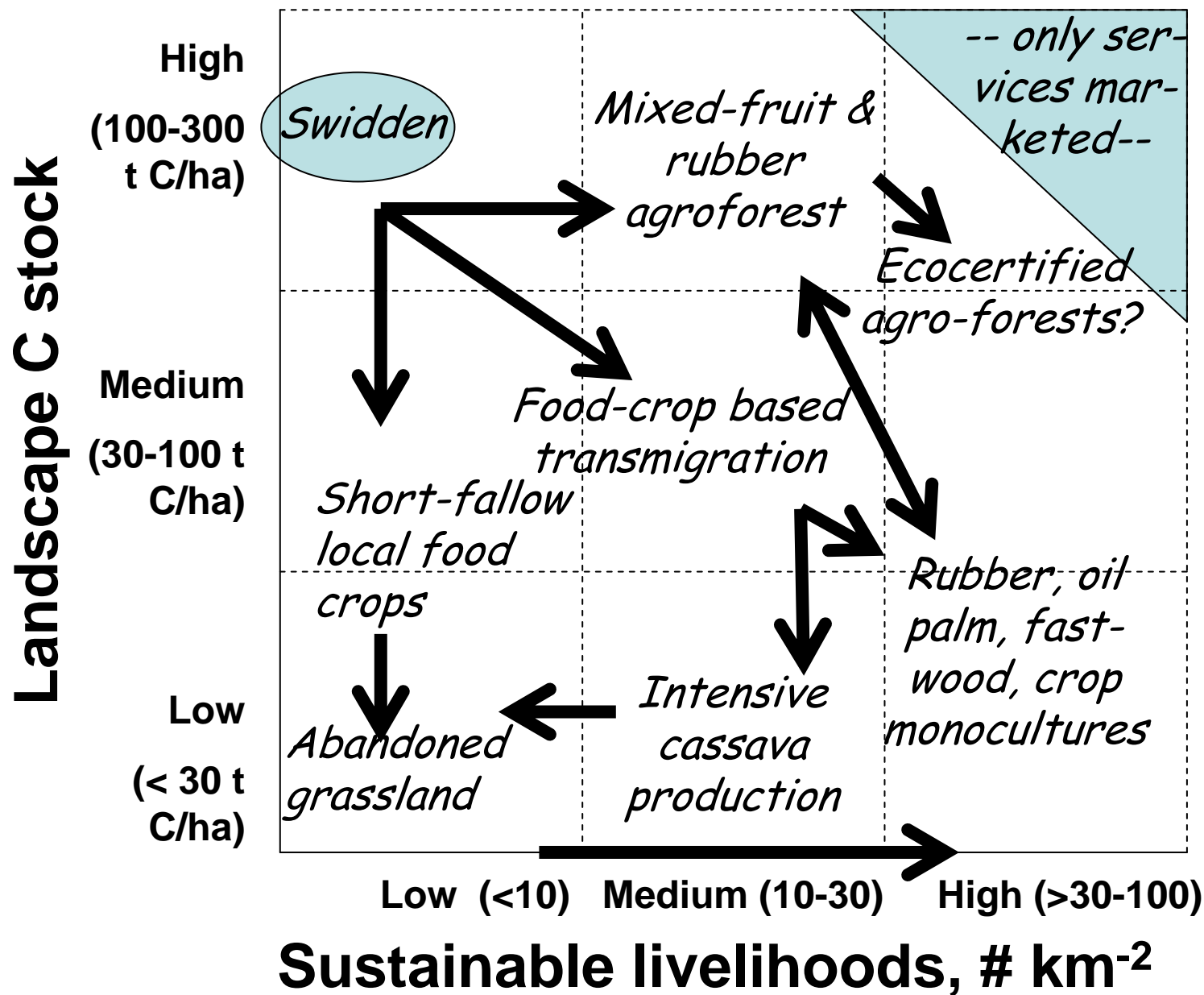
# High Carbon Stock Liveli- hoods a perspective from Indonesia



**Meine van Noordwijk, Niken Sakun-  
taladewi, Fahmuddin Agus, Sonya  
Dewi (ICRAF, FORDA, ISRI)**



Swidden,  
Shifting cultivation,  
Fallow,  
Slash and Burn  
review for Indonesia

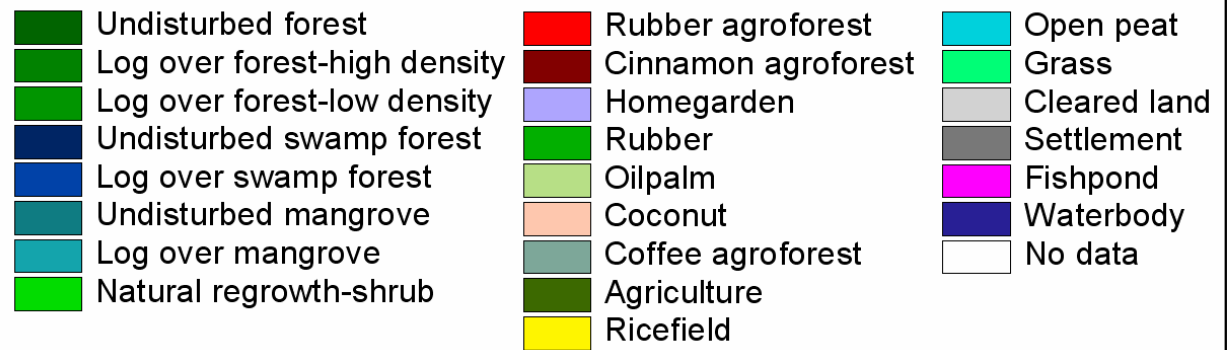
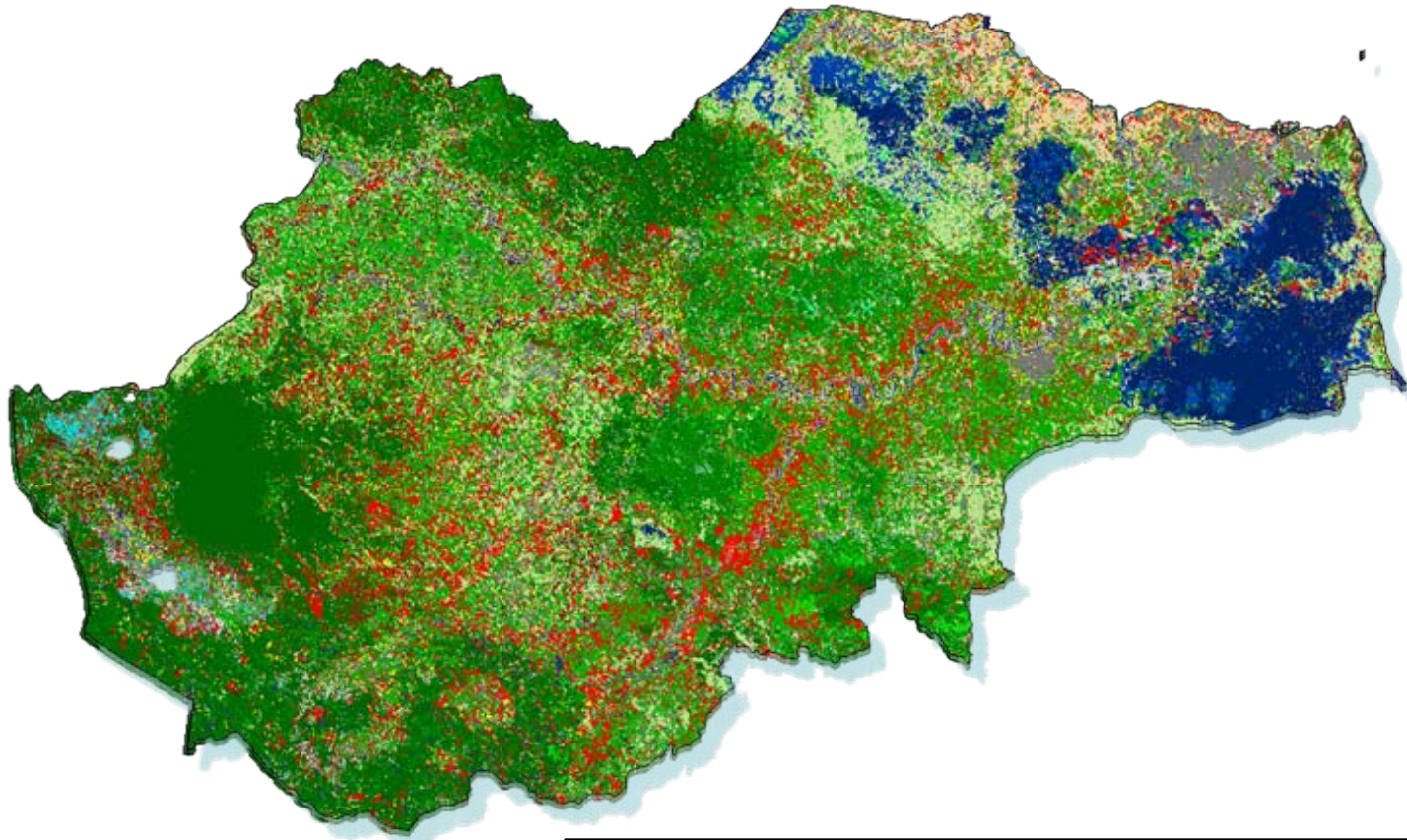








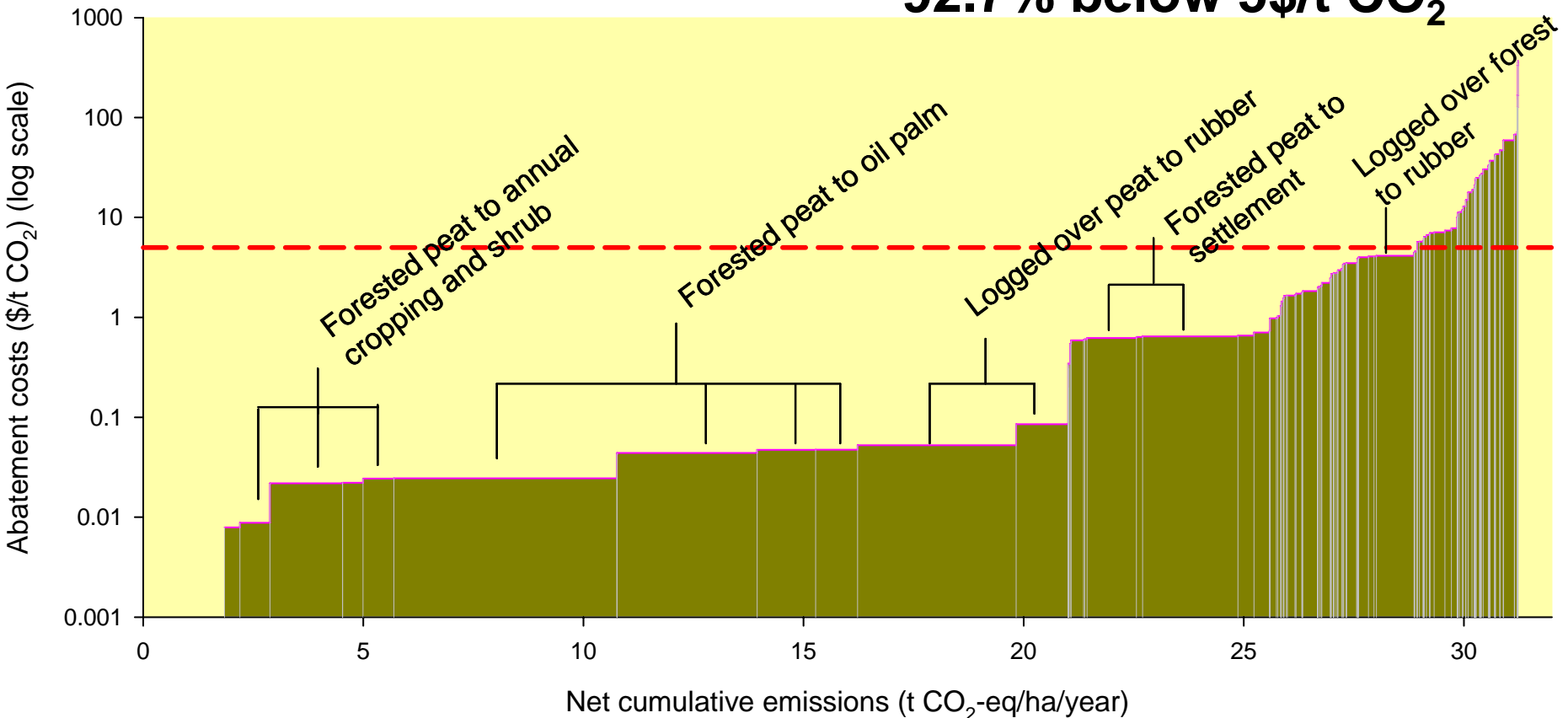
# Results : Jambi 2005



# Huge emissions, but very little 'deforestation'

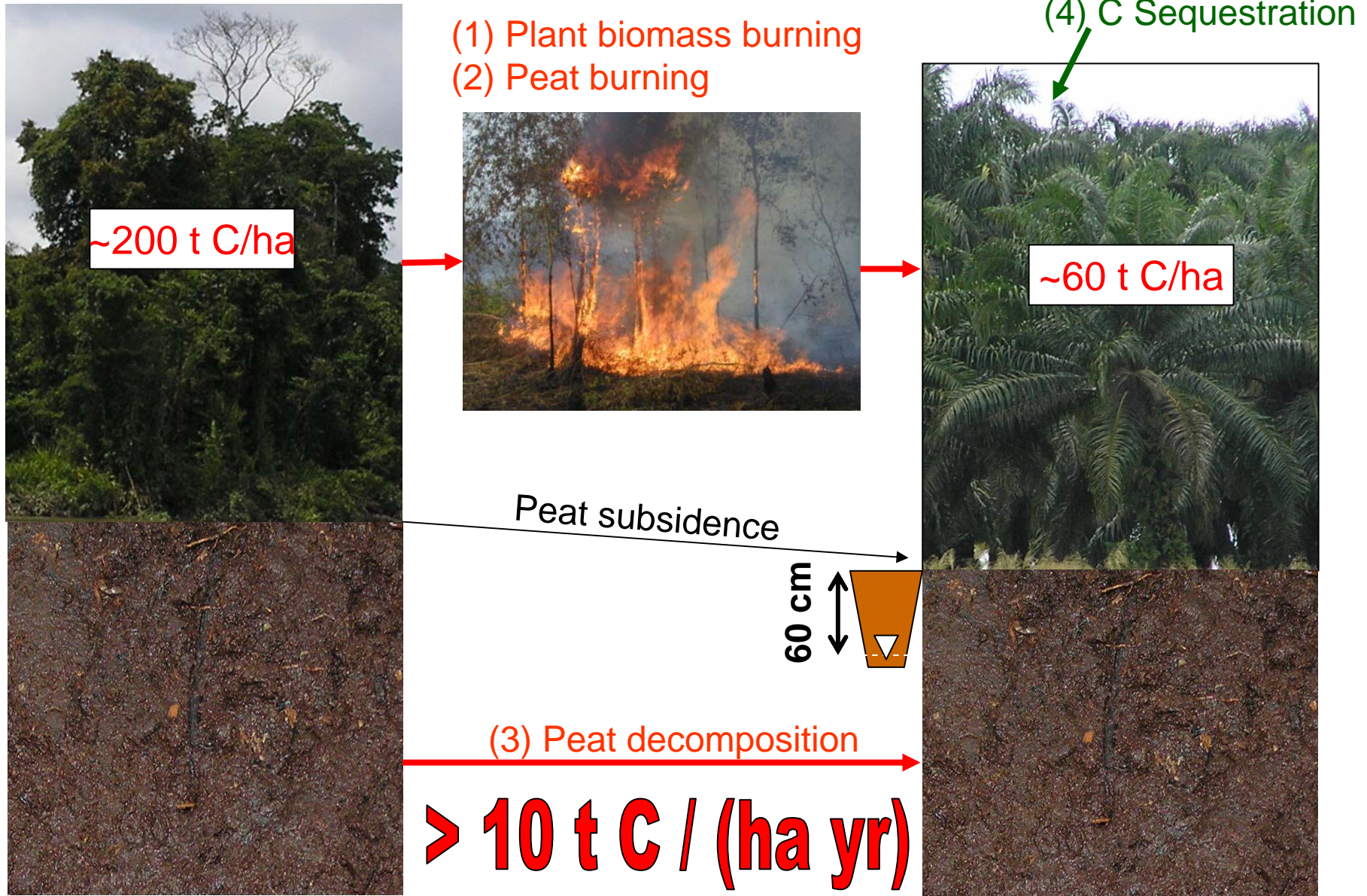
Jambi (peat lands included) : 31.2 t CO<sub>2</sub> / ha / year,

92.7% below 5\$/t CO<sub>2</sub>





# Peat forest → oil palm forest: high emissions



**Forest definition  
based on X%  
canopy cover**

Defores-  
tation?

**Forest definition  
based on insti-  
tutions & intent**

***Non-forest without trees***

***Trees  
outside  
forest***

***Forest  
with  
trees***

***Forest  
without  
trees***

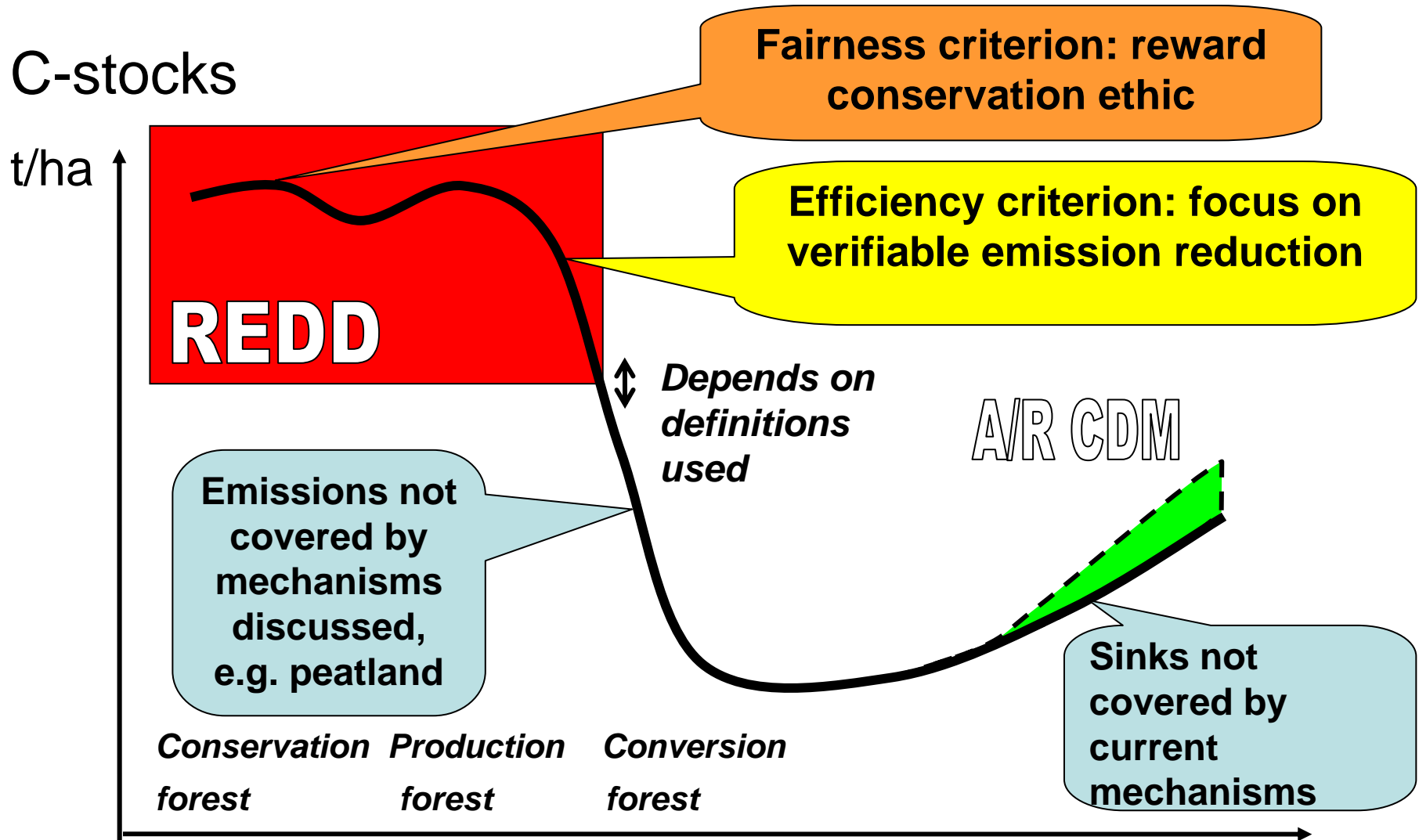
***Total land area***

Including e.g.  
agroforests, oil  
palm plantation

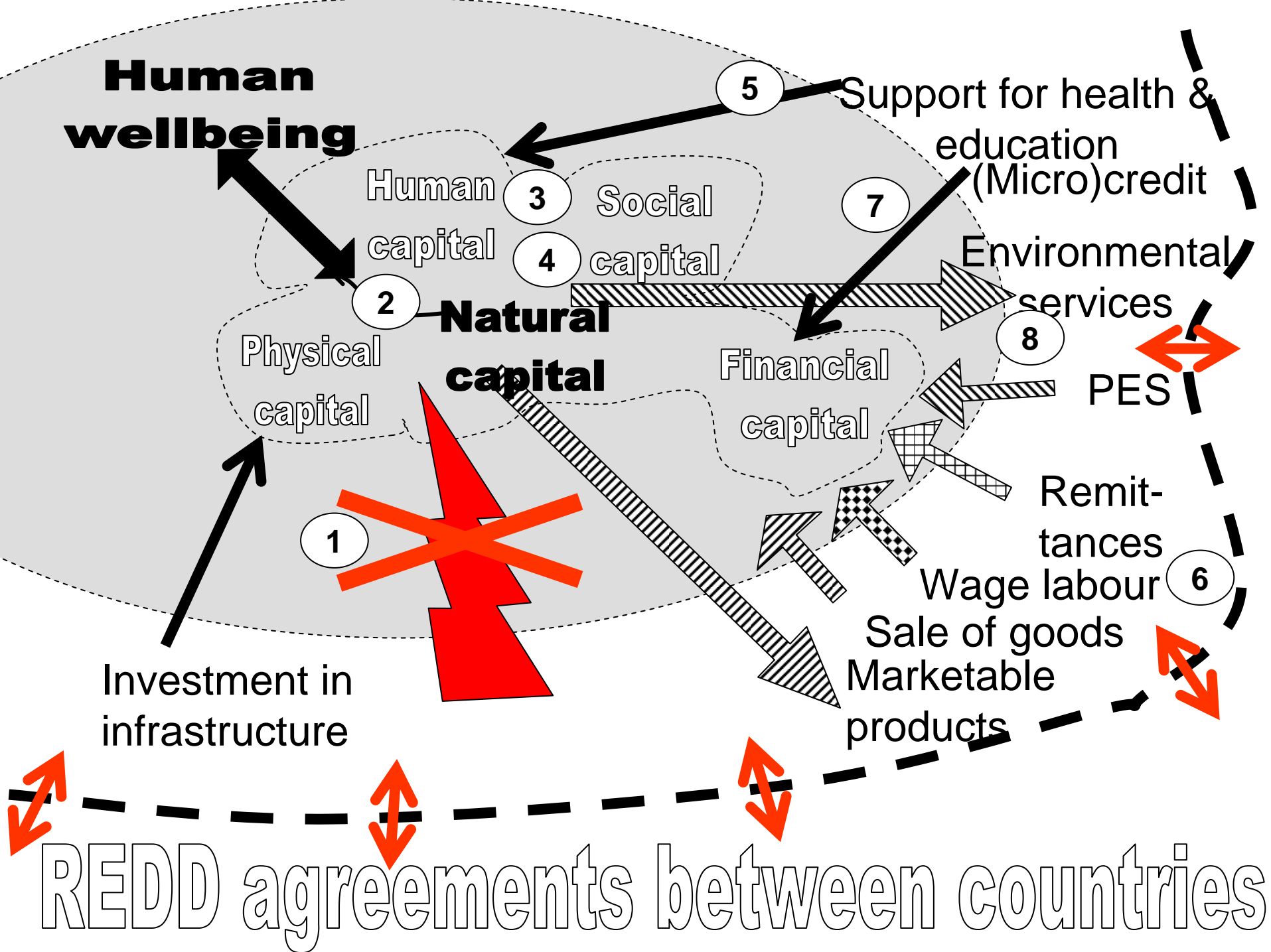
Clearfelling/ re-  
plant is accep-  
ted as forest; no  
time-limit on  
'replant'



# The efficiency versus fairness challenge



→ Time, national land-use-change trajectories





# Redd value chain from local action to global impact

**A.** Reducing the immediate causes and drivers of emissions by *reducing illegal* emissions, protecting existing C stocks in woody vegetation and/or C-rich soils and *off-setting legitimate* opportunity costs (*short-term effectiveness*) **FLEGT**

**B.** Transitions to sustainable livelihoods in C-rich landscapes (*fairness and long term effectiveness*)

**High C stock  
livelihoods**

Transaction costs

- C1. Reducing negative effects of emission-displacement and leakage (e.g. by securing low-emission alternative livelihoods and ways to meet existing market demand)
- C2. Negotiating and defining baseline of acceptable emission levels
- C3. Reducing risk of future emissions from temporarily protected C stocks
- C4. Consistent, reliable and verified accounting system
- C5. Issuance of 'credible and creditable' emission reduction certificates, according to national, and international standards
- C6. Salesmanship to attract investment, risk sharing and market sales of emission reduction certificates
- C7. Use of 'emission reduction certificates' in global emission accounting and reduction

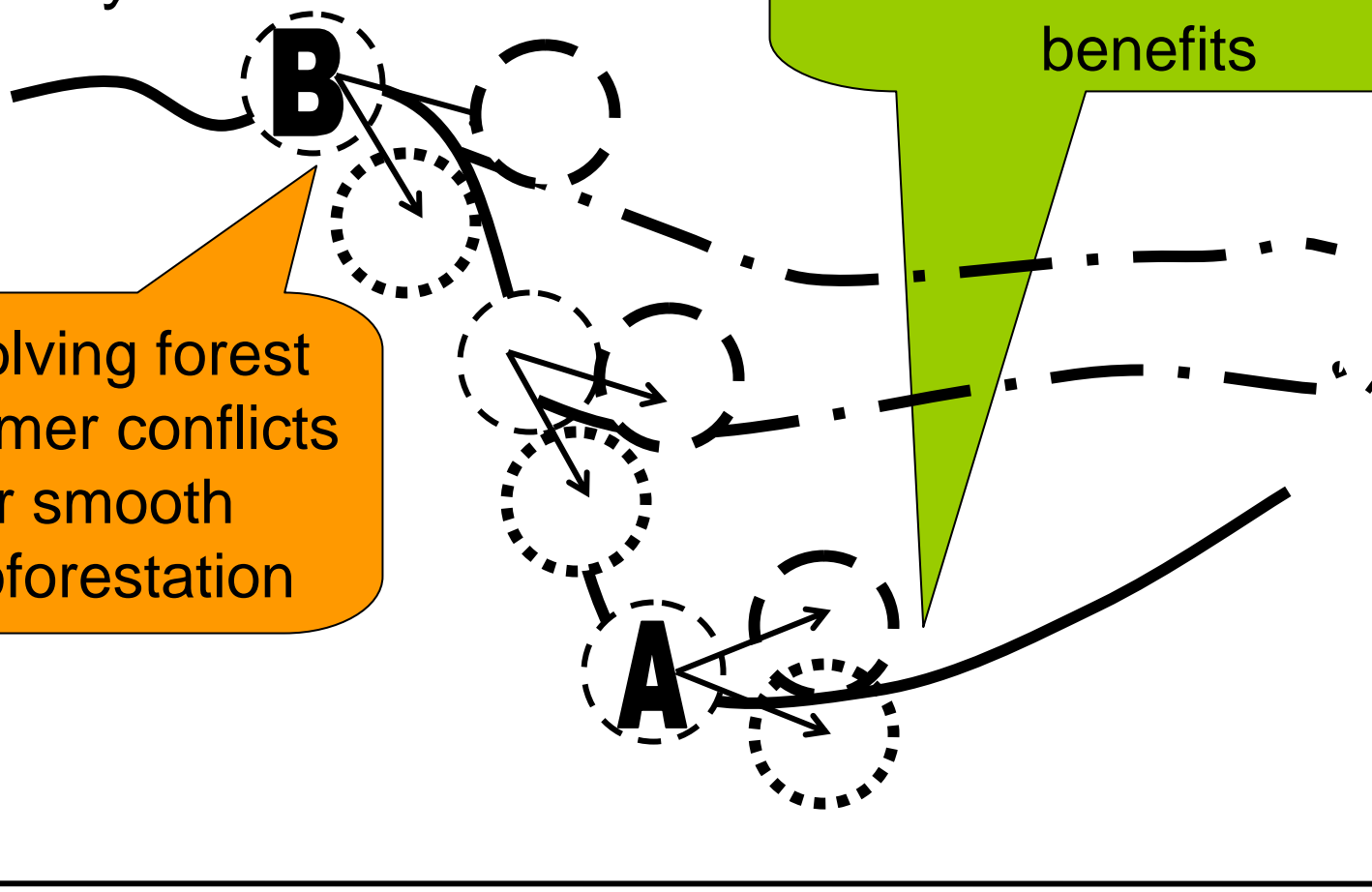
Global human footprint and impacts on atmosphere & co-investment

C-stocks (t/ha) or  
Biodiversity

Stimulating use of trees  
on farm for economic  
and environmental  
benefits

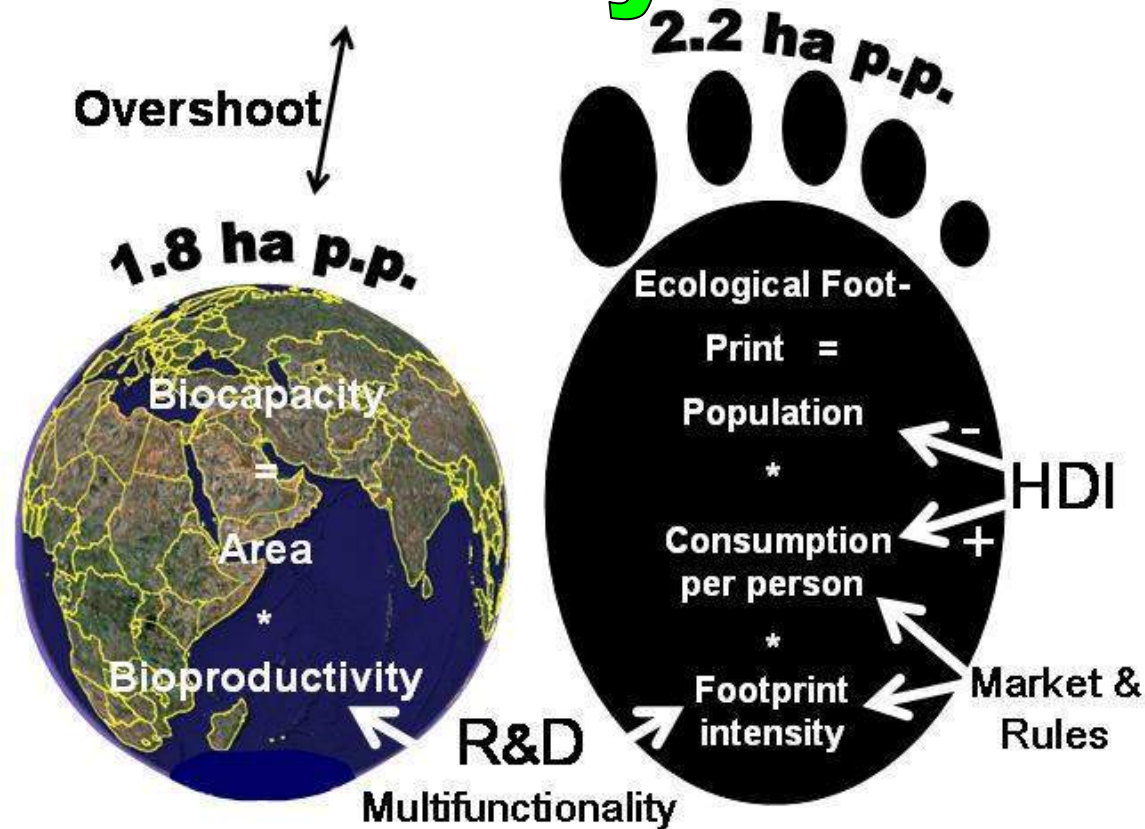
Resolving forest  
⇔ farmer conflicts  
for smooth  
agroforestation

→ Time, national land-use-change trajectories



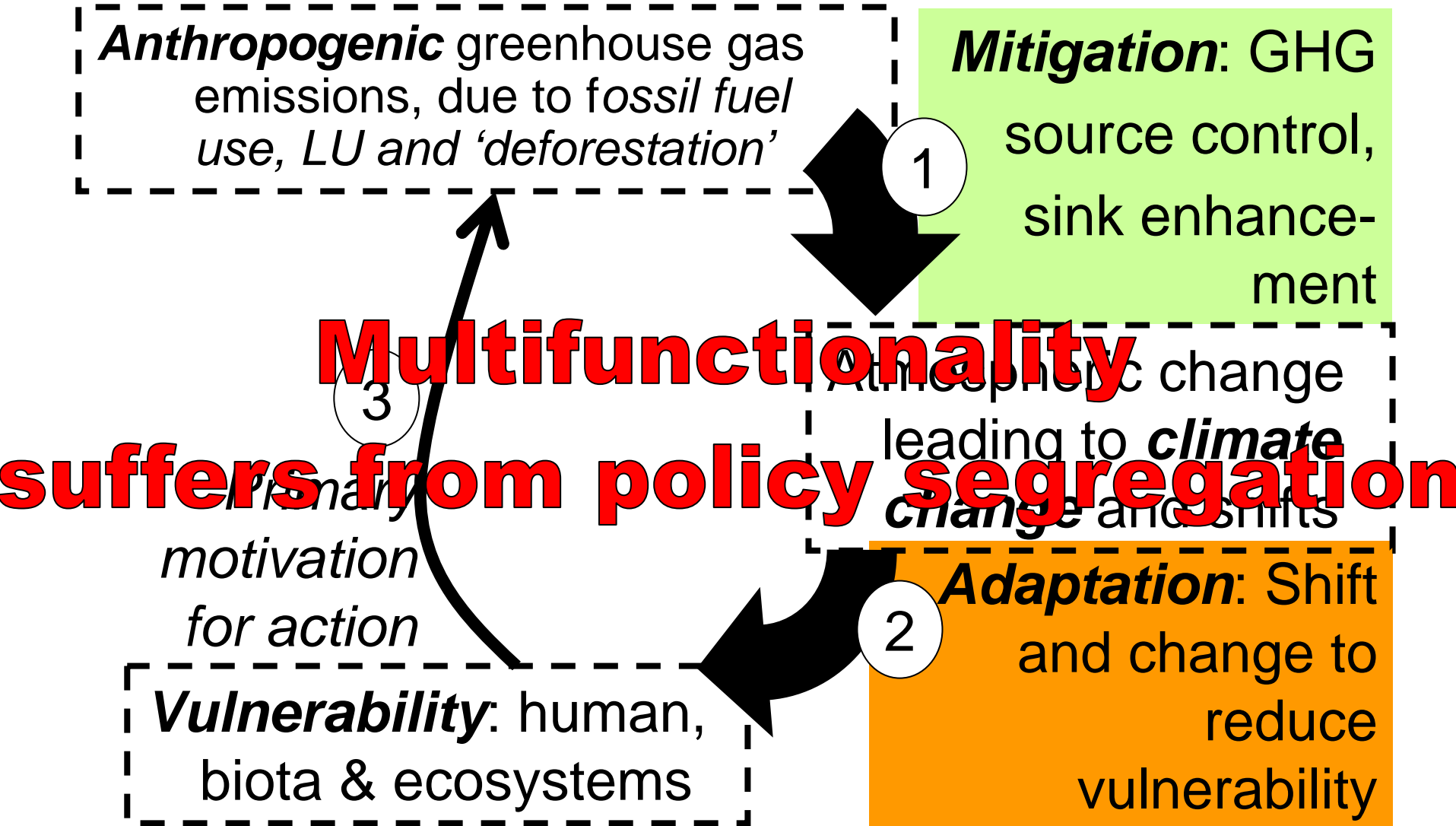


# Footprint overshoot implies multifunctionality as answer



**But, multifunctionality  
suffers from policy segregation**

# Diverse agroforests at interface of mitigation and adaptation debate





# Key points

1. High C stock livelihood systems exist in tropical forest margins across humid tropics
2. Internationally agreed forest definition is not an appropriate basis for ER policies
3. REDD may fail as A/R-CDM did, comprehensive (sub)national C accounting needed for outcome-based incentives
4. Multifunctionality requires clear and multiple 'bottomlines', not prescriptions of activities

# Supporting high C-stock livelihoods

1. Promote appropriate frequency of '*Trees farmers want*' in landscapes managed for both marketable goods and environmental services
2. There are many examples of 'agroforests' developed under local conditions that can provide adequate income > 50 persons per km<sup>2</sup> at >60 t C/ha in aboveground biomass
3. C-stock derives from growth rate + residence time; interplanting management differs essentially from rotations in time-averaged C stock
4. Soil organic matter management and minimal drainage of peat lands is integral part of the discussion