



RED baselines in Total Land-use/Economy Context

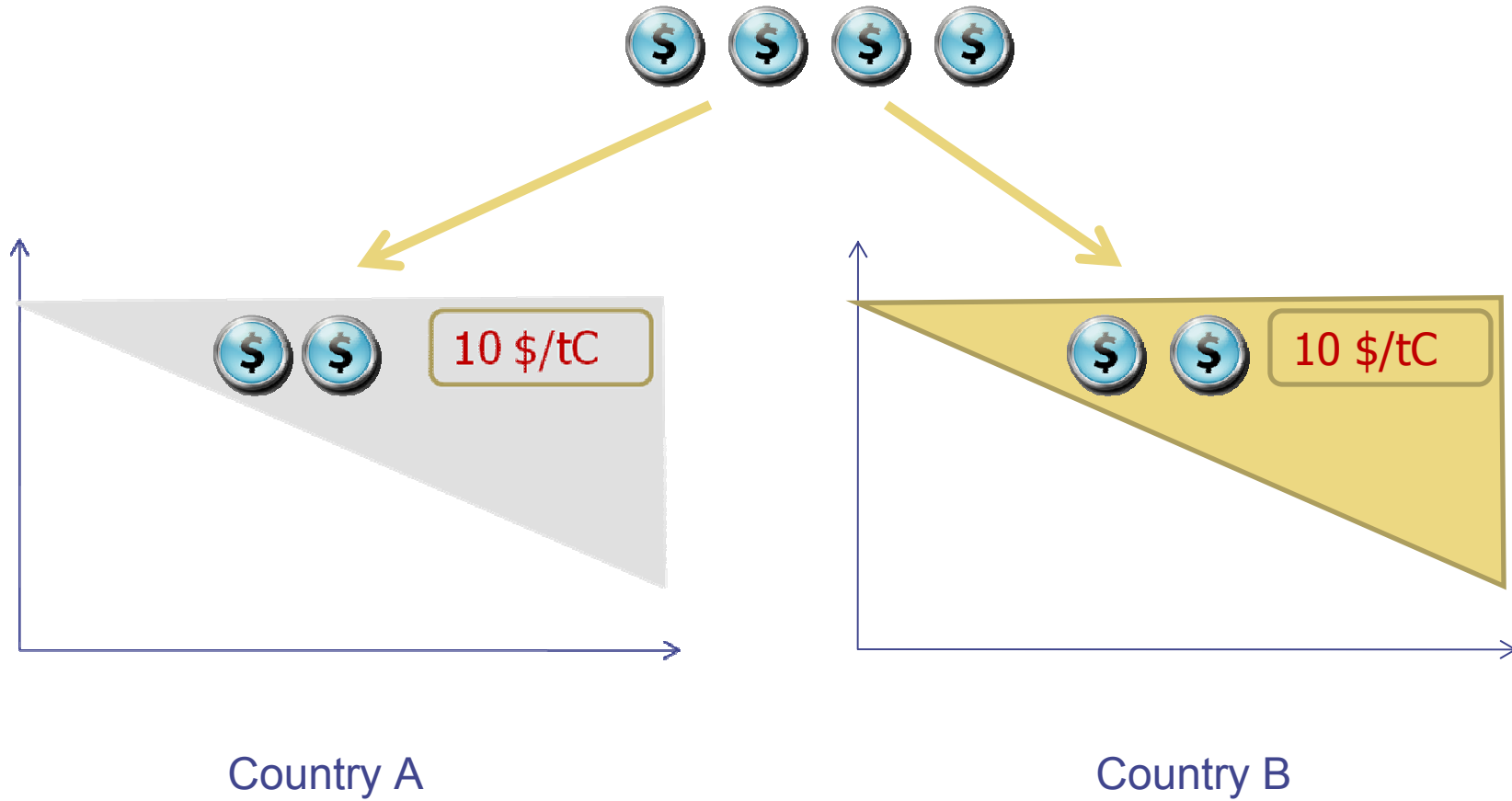
Michael Obersteiner, Petr Havlík et al.
Forestry Program, IIASA

Key principles to underlie a REDD mechanism

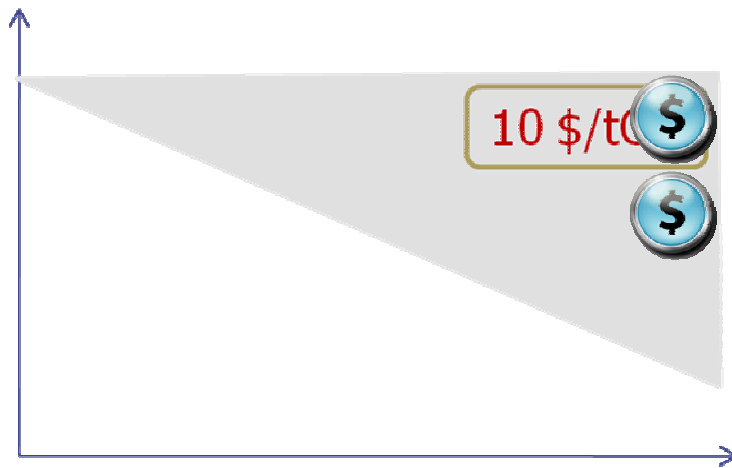
Per voting at workshop

	Votes for most important	Votes for least important
Encourages widespread participation	20	1
Allows for a mix of complimentary approaches	6	1
Targets at risk area	-	10
Rewards on the basis of carbon stock (at risk or no)	n/a	n/a
Incentivises protection of carbon stock	5	6
Encompasses all significant emissions activities	1	1
Discourages leakage, national and international	7	1
Ensures reductions are additional	3	1
Ensures reductions are real	25	1
Ensures permanence	1	6
Rewards other eco-system services than carbon	3	12
Generates sufficient quantity of cash	2	-
Generates cash on a timely basis	4	-
Dampens (risk of) price volatility	-	7
Won't flood the market	5	10
Ensures long-term supply of cash	7	-
Equitable distribution of monies between nations	-	7
Appropriate distribution of monies within nations	2	6
Respects national sovereignty	3	2
Respects rights of all stakeholders within country	5	2
Encourages early action	6	-
Minimises costs/ gives biggest bang for the buck	3	3
Works at scale	2	3
Under the auspices of the UNFCCC	n/a	n/a

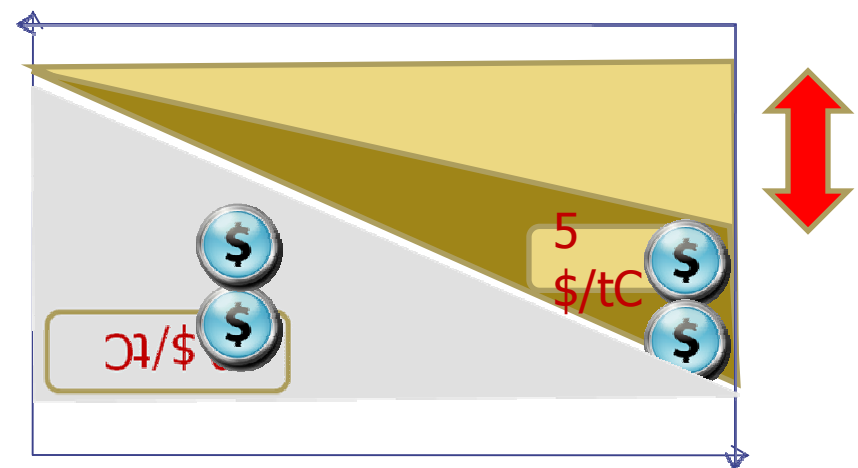
"Ensures Wide-Spread Participation"



"Ensures Wide-Spread Participation"



Country A



Country B

“Ensures Wide-Spread Participation”

◆ “Bad” Baselines lead to less participation:

- Asymmetric losers (Country A not in)

“Ensures Reductions are Real”

◆ “Bad” Baselines lead to UnReal Reductions:

- “Inflation” (25% less real REDD) – REDD Hot Air

Baseline Methods

◆ Historical Econometric Models

■ Non-structural

- ◆ constant base year emission level; $DD_{t+1}=DD_t$
- ◆ extrapolation of last period's trend;
- ◆ extrapolated last period's trend and change of trend
- ◆ Sophisticated time series models

■ Structural (possible ex post correction)

- ◆ $DD=f(\text{Population, GDP})$ (Witmer et al. 2005)
- ◆ $DD=f(\text{Population, GDP and Governance indicators})$
- ◆ $DD=f(\text{Ag and timber prices/demand})$
- ◆ $DD = f(\text{Infrastructure, demand etc.})$ (GEOMOD)

◆ Future Oriented Models

- Integrated Assessment Model (POLES, MESSAGE, TIMER)
- General Equilibrium Model
- Partial Equilibrium Model (GTM, GCOMAP, GLOBIOM)
- Agent based Model (DIMA) 6

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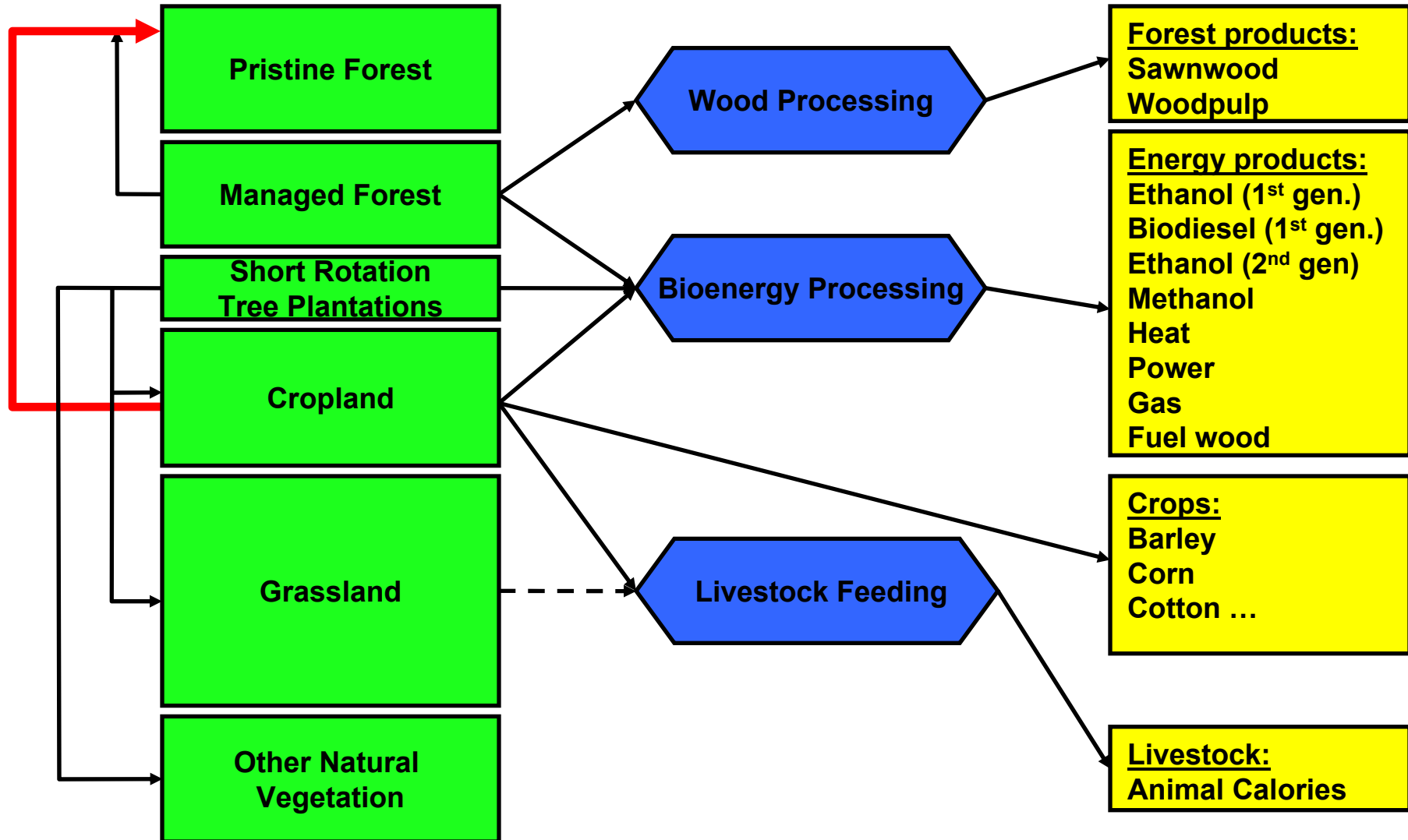
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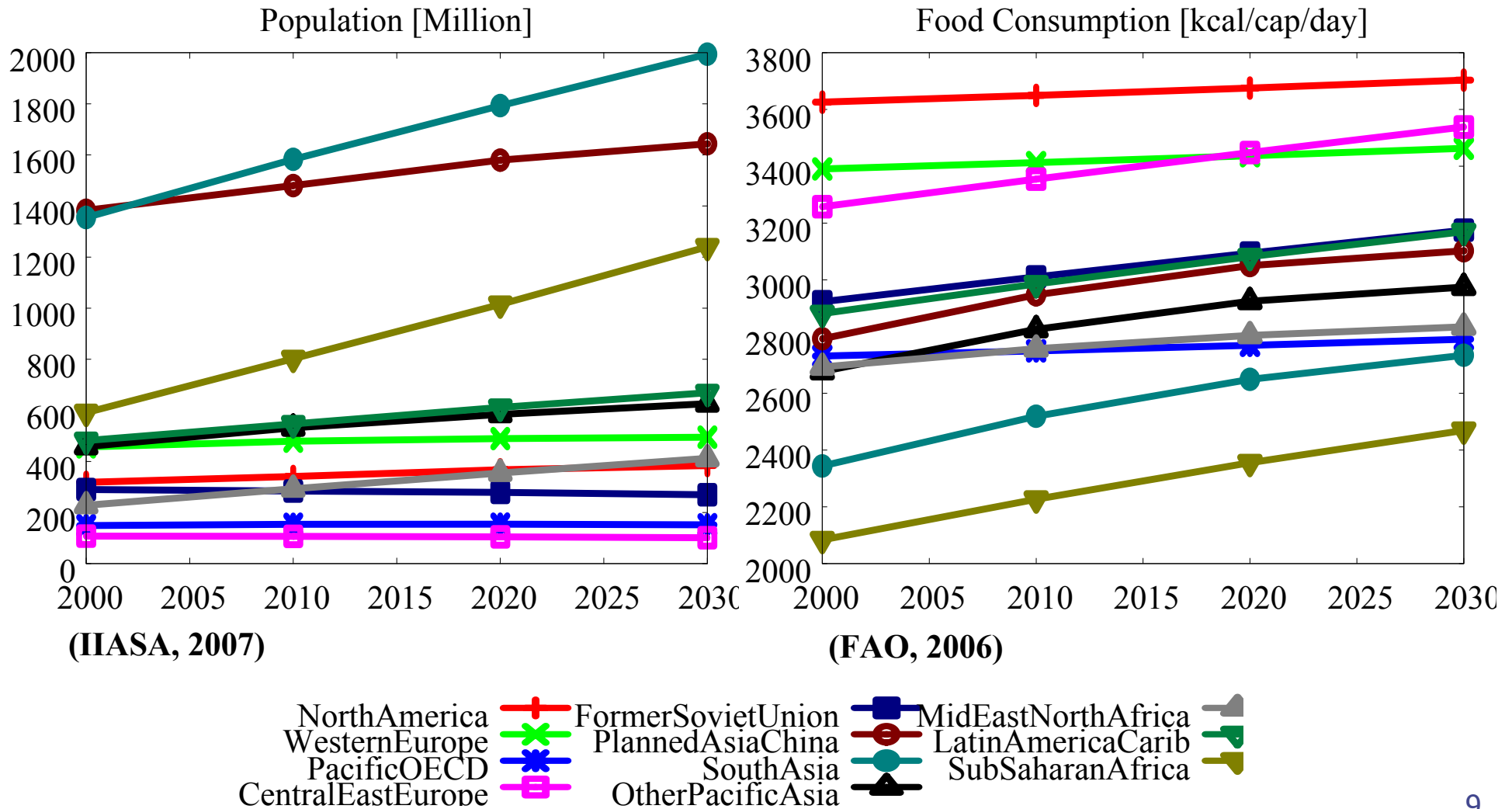
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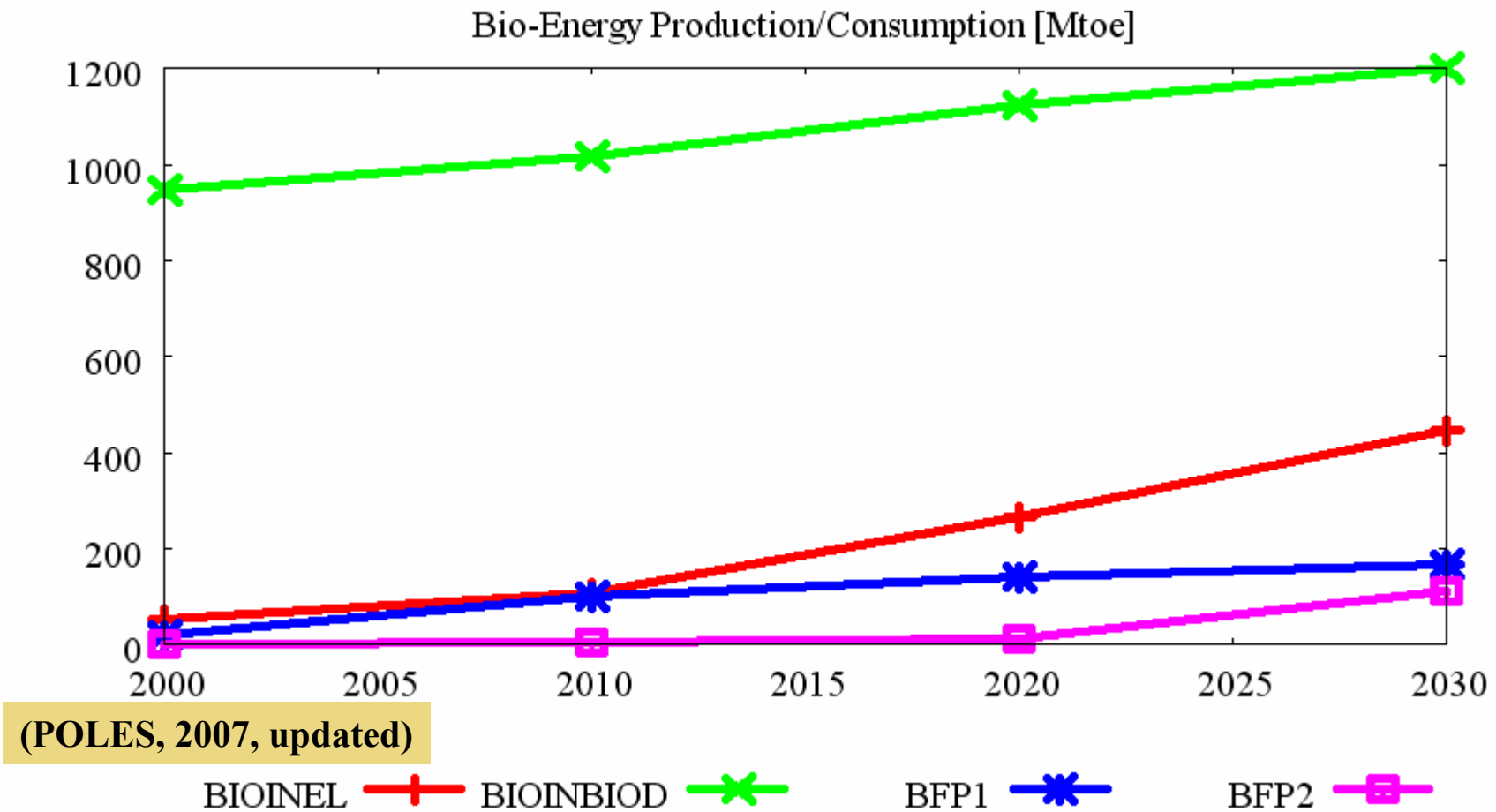
II. Model presentation: Supply chains



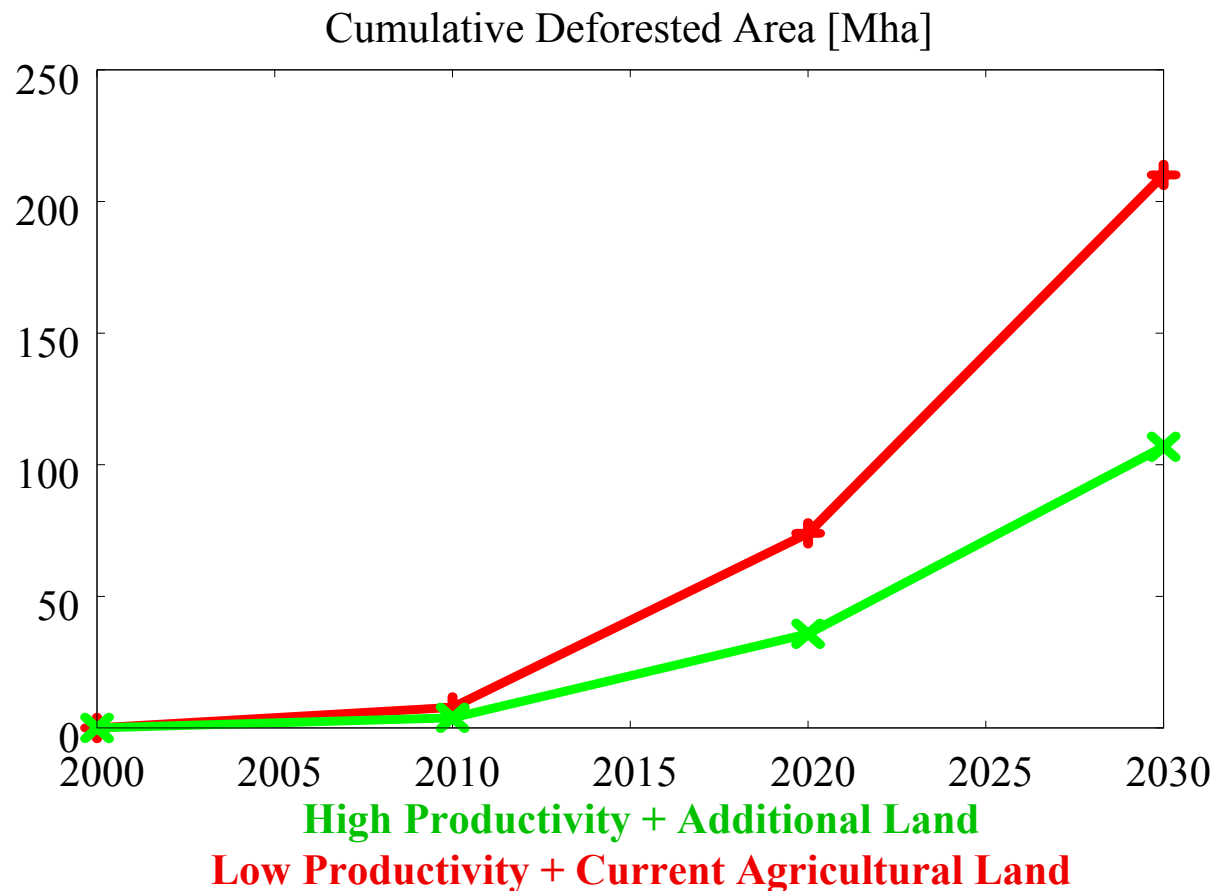
III. Numerical analysis - Baseline: Drivers



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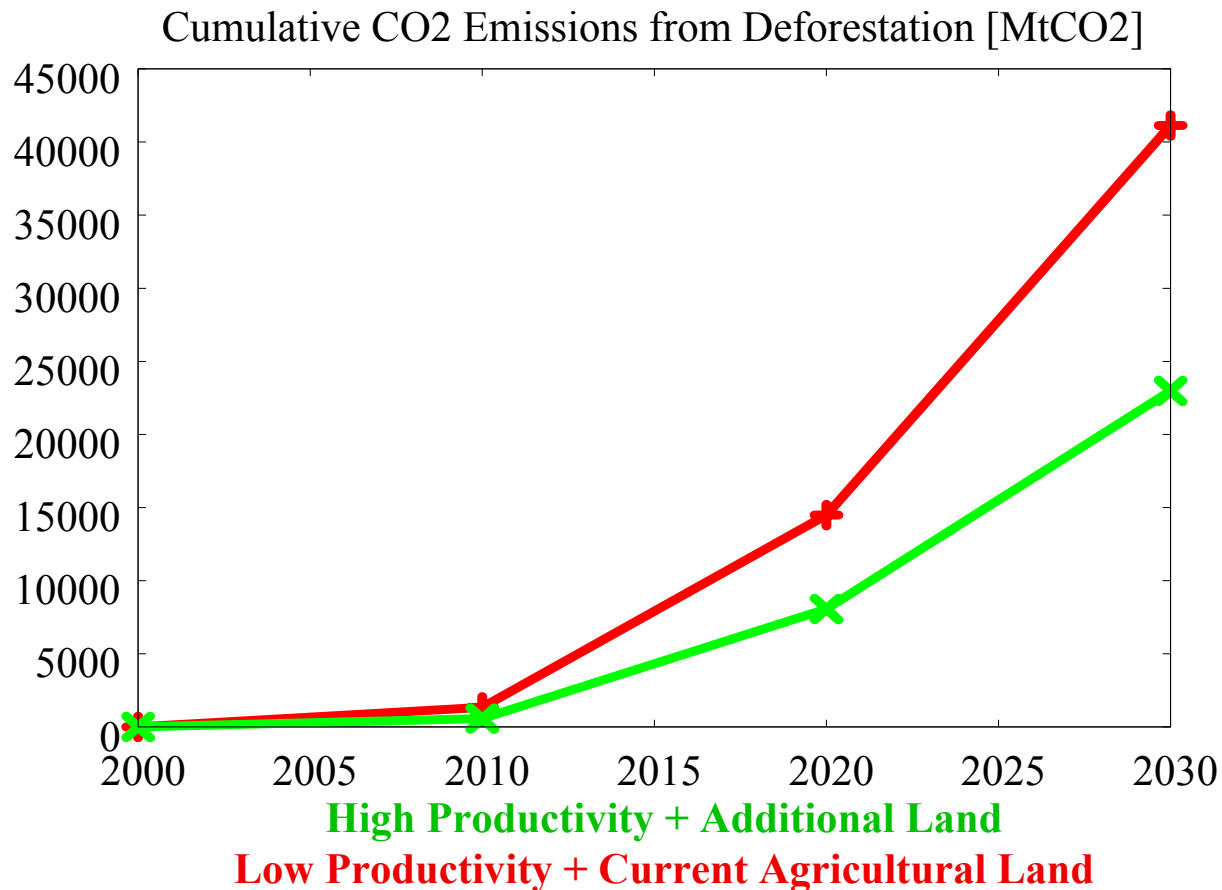


III. Numerical analysis - Baseline: Forests



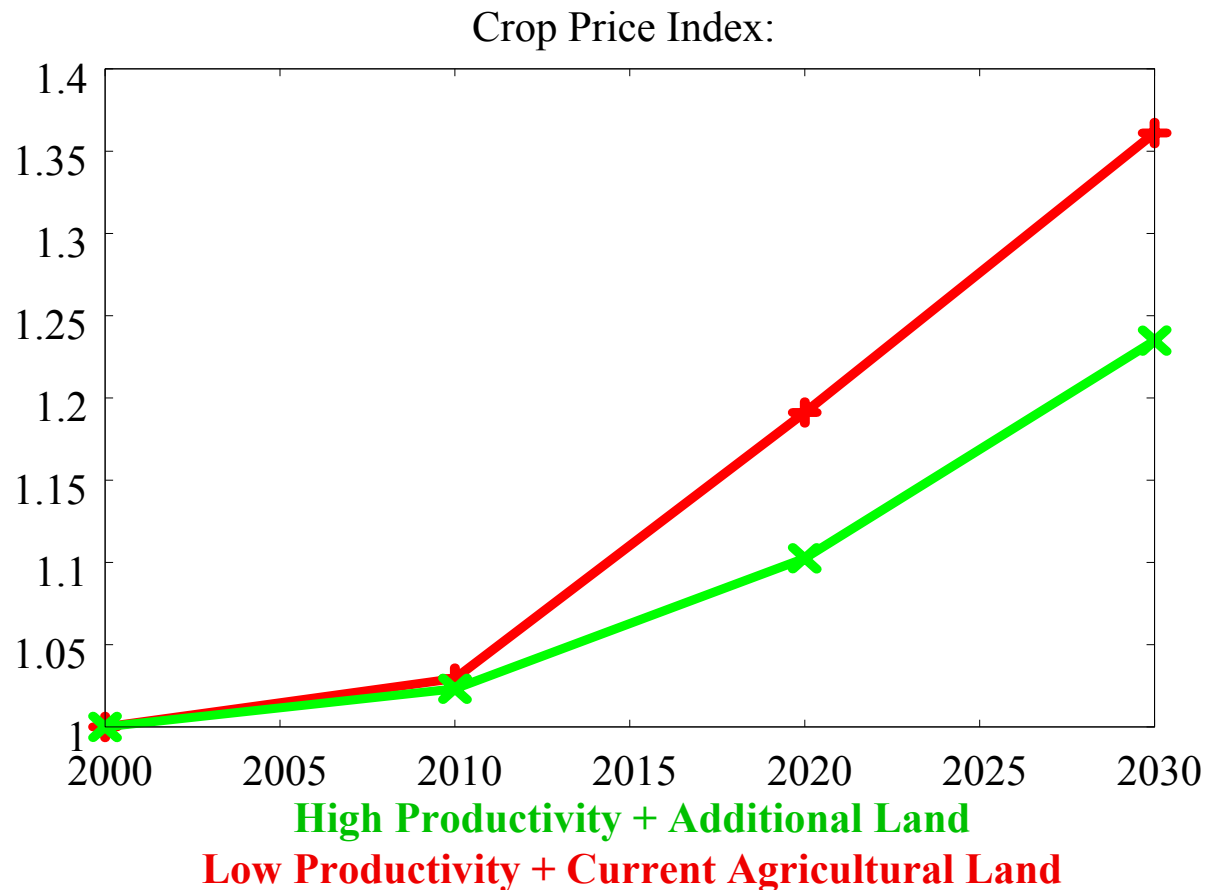
Demand for ag. products and bio-energy will put pressure on deforestation...

III. Numerical analysis - Baseline: Forests



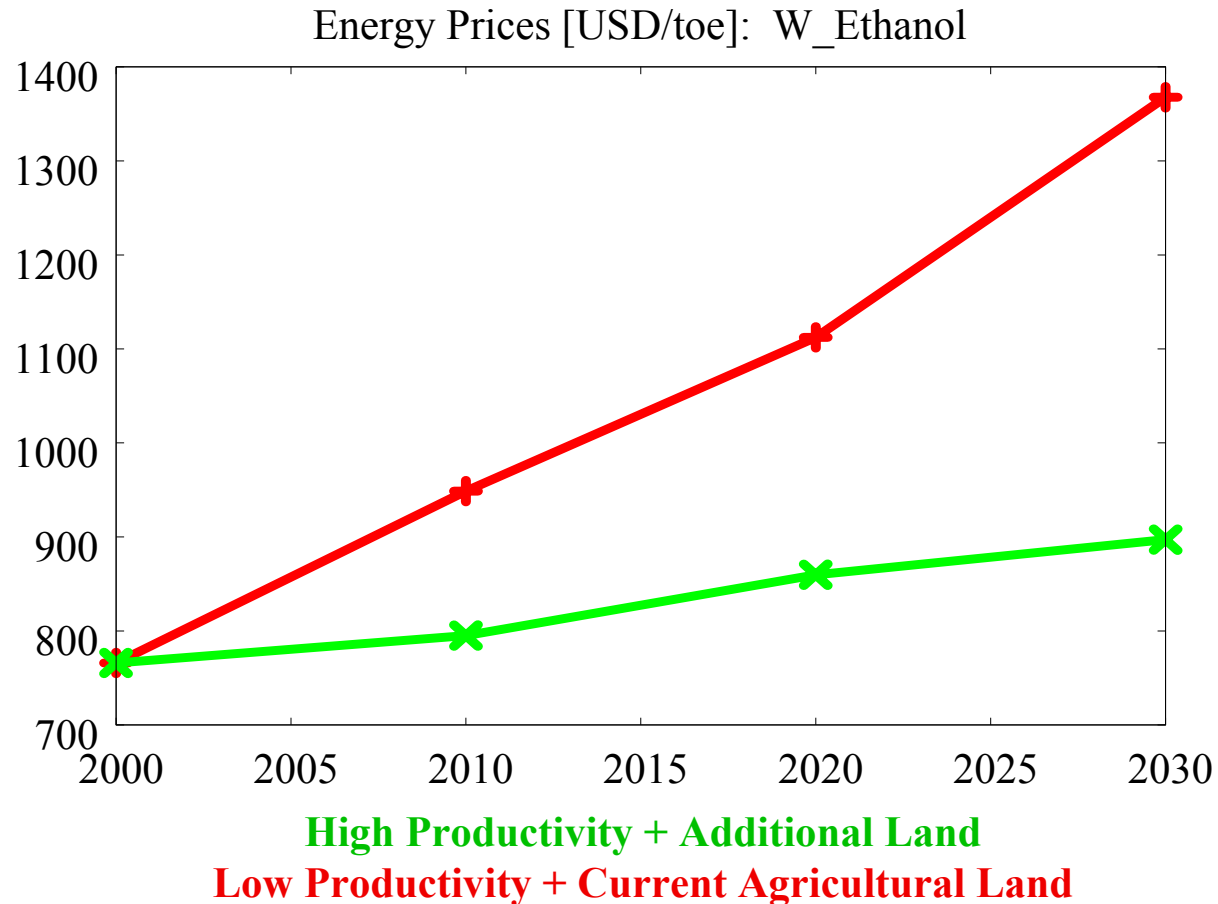
... and thus on CO2 emissions.

III. Numerical analysis - Baseline: Food



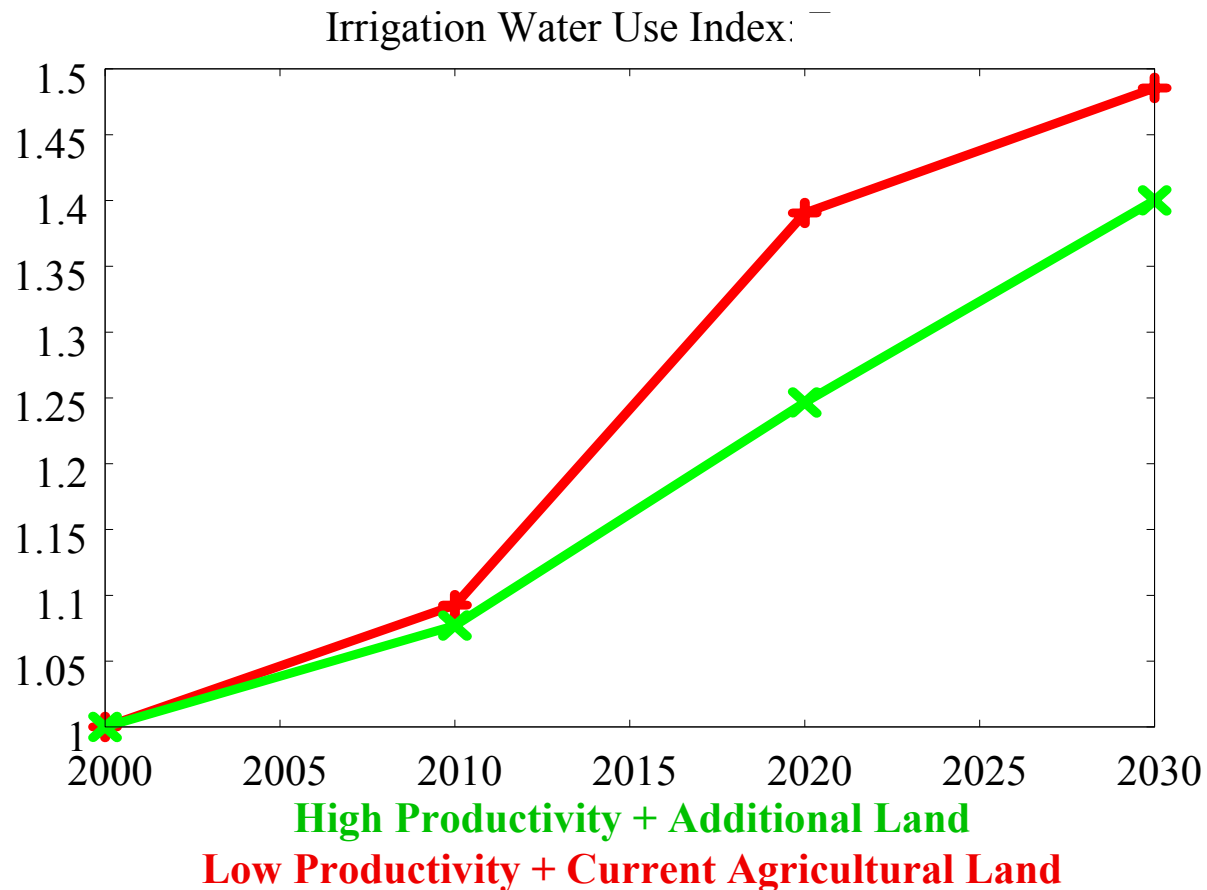
Moderate increase in crop prices if production systems adjust!

III. Numerical analysis - Baseline: Energy



Availability of currently not used land important for development of biofuels from dedicated plantations.

III. Numerical analysis - Baseline: Intensity

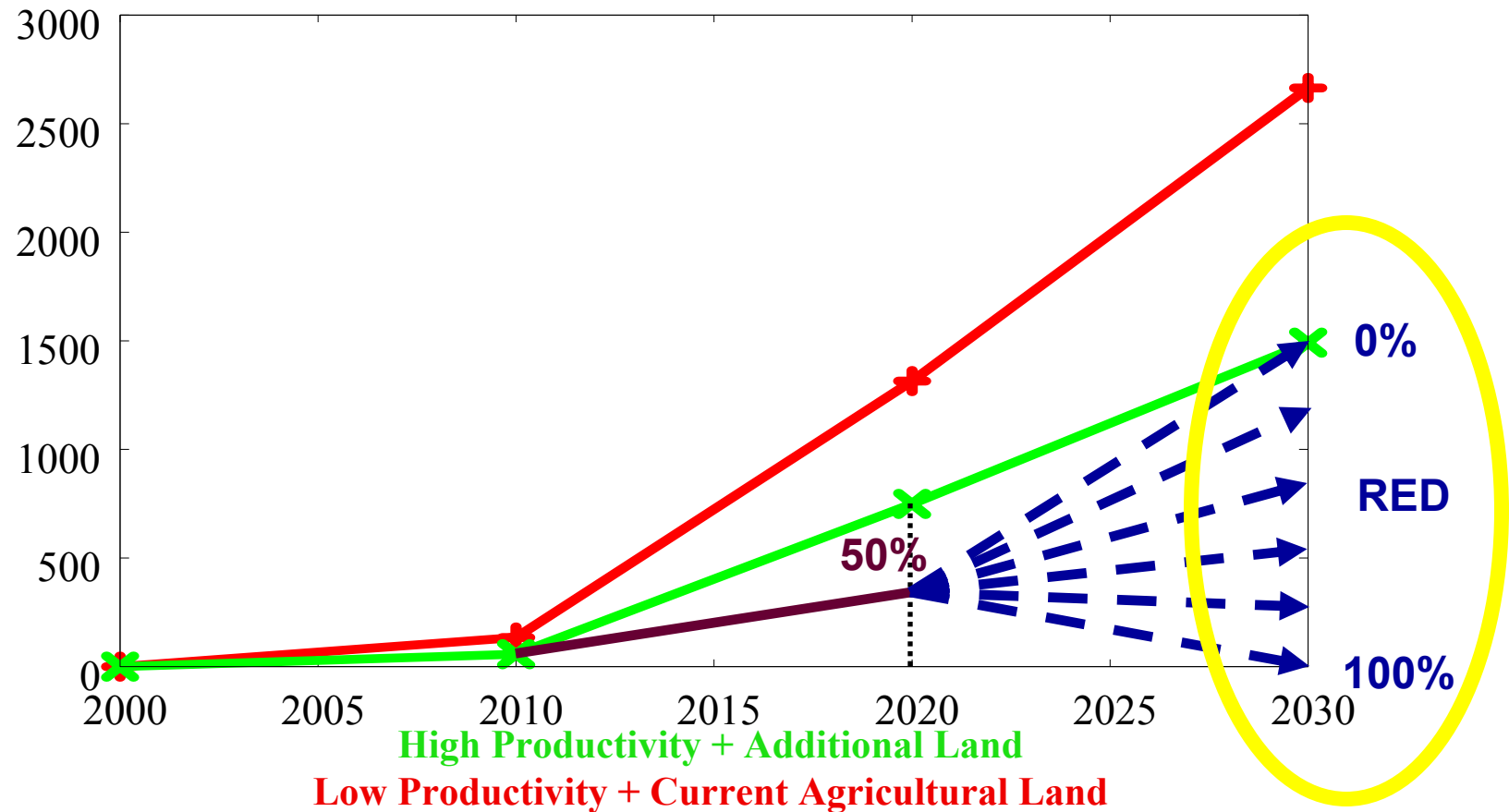


Is intensification possible?

IV. Numerical analysis - Costing

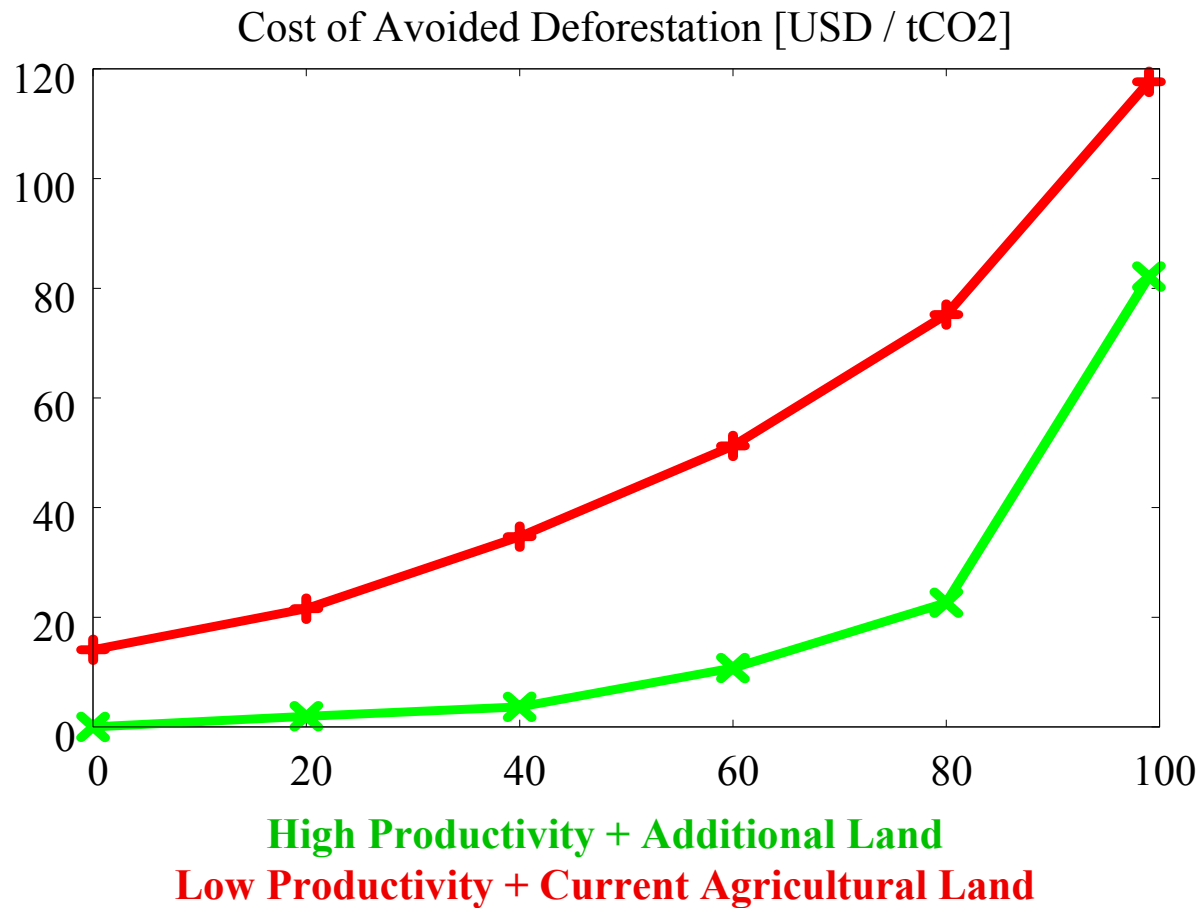
SCENARIO: 2030 emissions reduction compared to High Productivity + Additional Land 2030 updated baseline.

CO2 Emissions from Deforestation [MtCO2/Year]



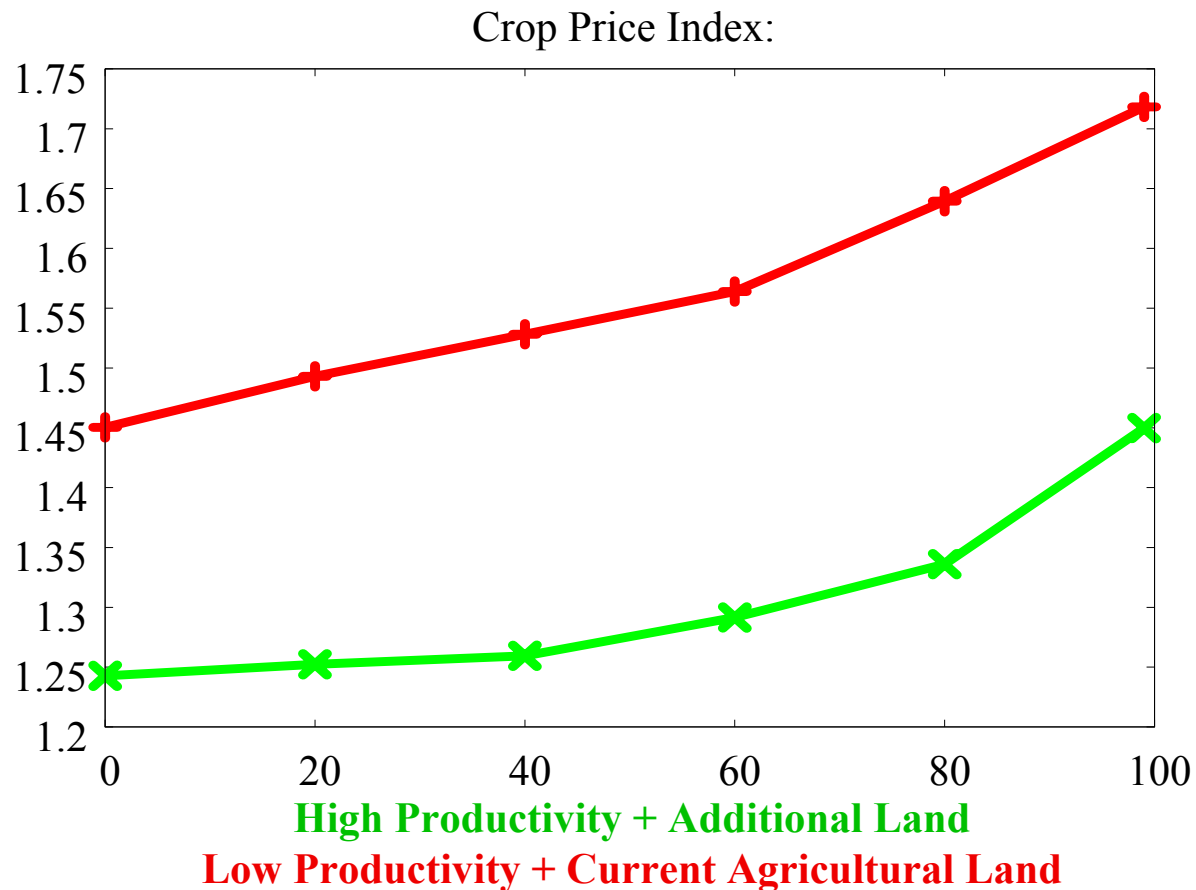
Quantity driven scenarios → Opportunity costs of avoided deforestation

IV. Numerical analysis - Costing: Cost



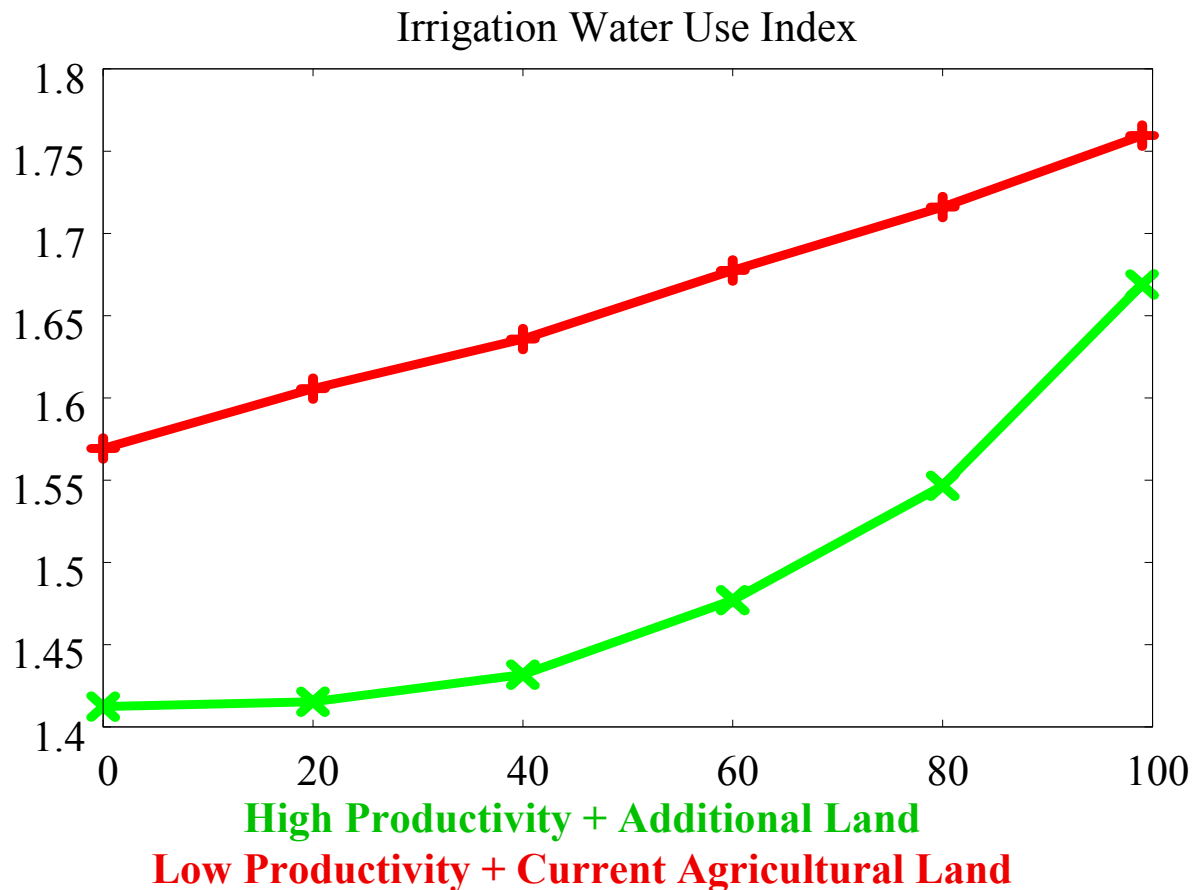
Success depends on the right baseline!

IV. Numerical analysis - Costing: Food



Improperly implemented RED may jeopardize food security.

IV. Numerical analysis - Costing: Intensity



Increased agricultural intensity necessary to accompany RED

- Feasible? Other environmental effects?

V. Conclusions

RED interaction with other sectors and within itself (participation)

PASSIVE ← Economic development, Energy policies, REDD participation...

ACTIVE → Food security, Energy supply, Environment

Baselines are sensitive to input data

Quality of data, both **bio-physic** and **socio-economic**,
crucial for successful RED implementation.

Modernization of Agriculture!!!

◆ “Good” Baseline Methodology makes REDD

- FAIR (no asymmetric winner loser profile)
- EFFICIENT (avoid REDD Hot Air)
- EFFECTIVE (baseline analysis provides REDD strategy)
- SUSTAINABLE (total society benefits)

???

Keep It Simple Stupid

vs.

Integrated and Globally
Consistent Modeling Framework