

Challenges in modelling social-ecological processes in tropical land systems leading to deforestation and forest degradation

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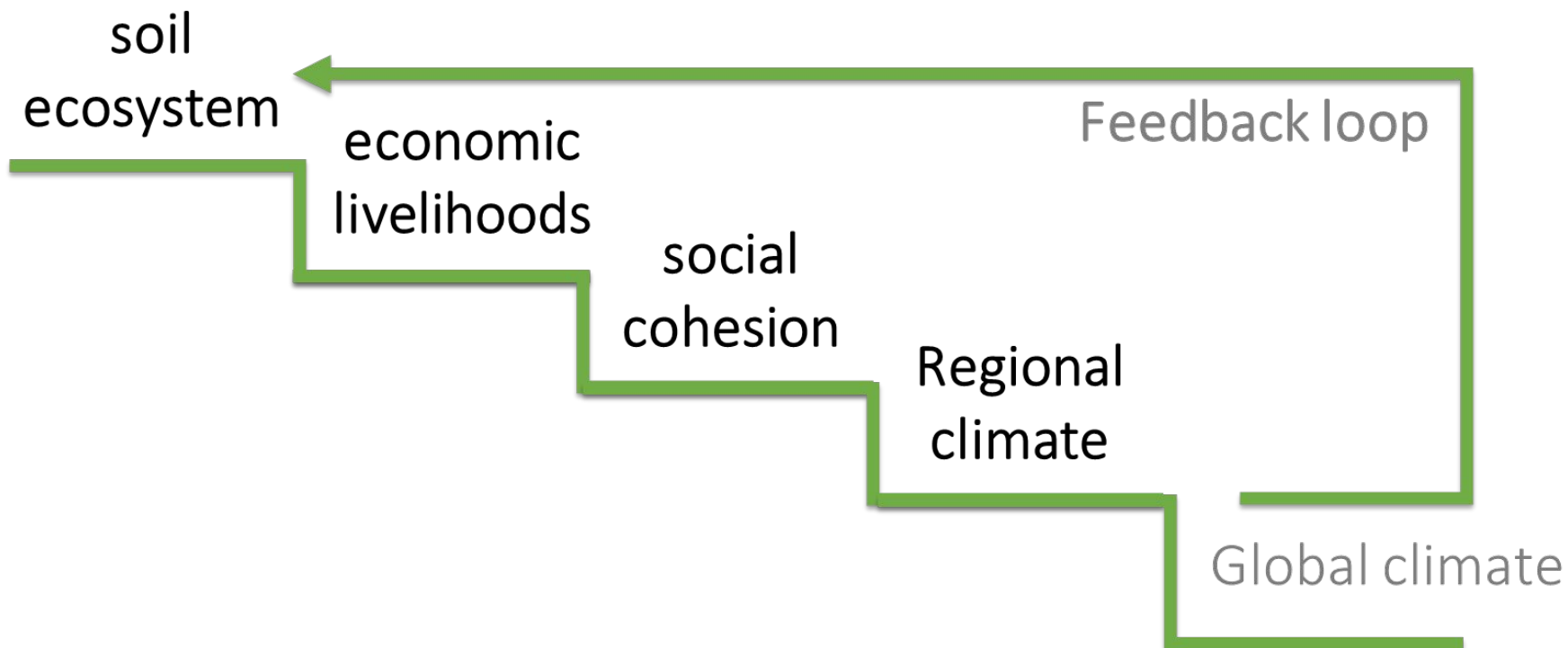
GEFÖRDERT VOM



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- Framing of the land-use system within the MAP region:
 - Climate change impacts such as droughts and floods, converge with land-use often beyond the law; e.g. forest loss and degradation.
 - Conceptualization of environmental and societal vulnerabilities as a cascade of interdependent tipping points of the social-ecological system.
- Hypothesis: When climate change impacts and soil degradation cross critical threshold levels economic livelihood starts diminishing and in turn triggers a tipping point of the social system leading to a drastic loss of social cohesion and further deterioration of ecological processes.
- Methods: Quantitative and qualitative analyses along the diverse system features, driving forces and external stressors.
- Goal: Investigate dynamics of the cascade of tipping elements and identify potential decisions to reach positive solutions for stabilizing and safeguarding social and environmental system components.

We investigate the interactions along a cascade of 4 Tipping Elements with respective Tipping Points.



Scenario panel meeting,
Rio Branco, Sept. 2019



Panel defines main elements of 4 storylines for the MAP Region.



PRODIGY scientists write draft storylines and conduct first computer simulations.

Peru - Madre de Dios



Brazil - Acre



Bolivia - Pando

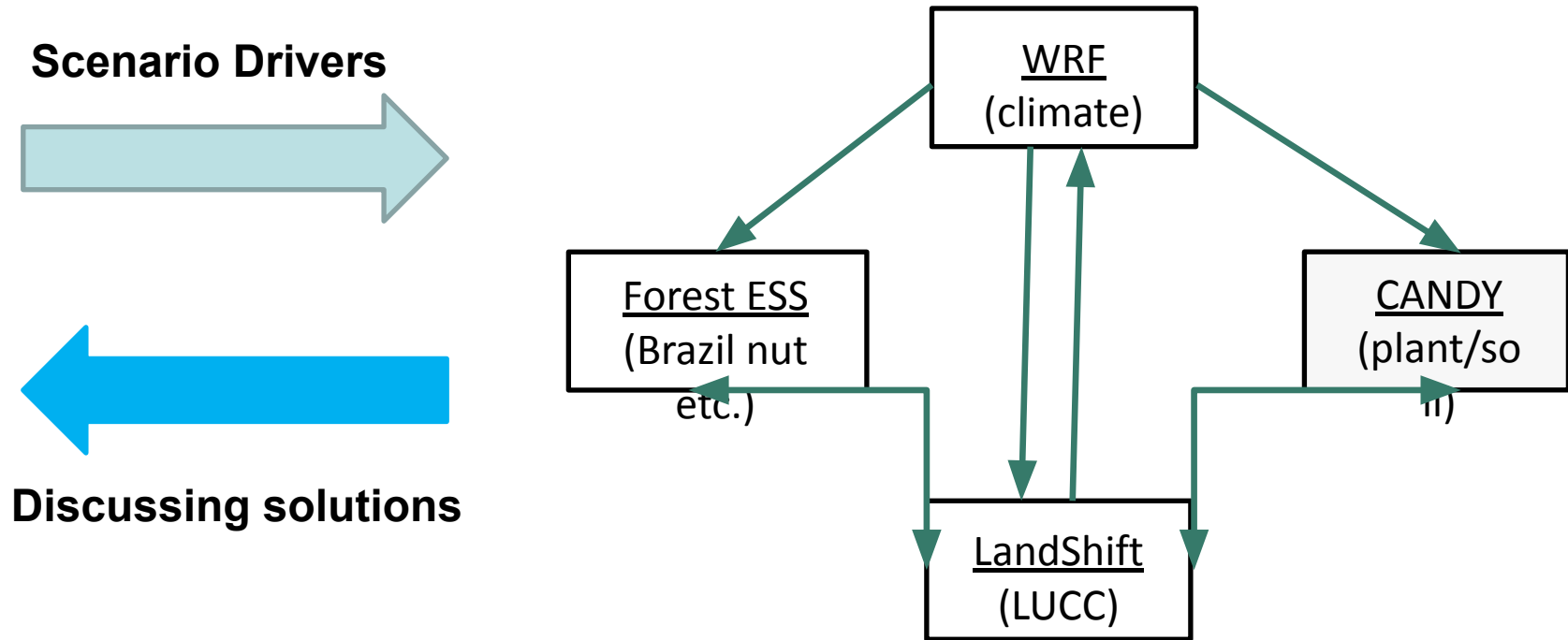


2020/2021

Storylines will be refined and adapted by regional panels.

- Mining activities (Madre de Dios),
- infrastructure development (Pando),
- changing (agricultural) practices (Acre),
- changing lifestyles of young people,
- weak governance etc.

Integrated model system



New model processes & model coupling strategies required

Thank you for your attention!