

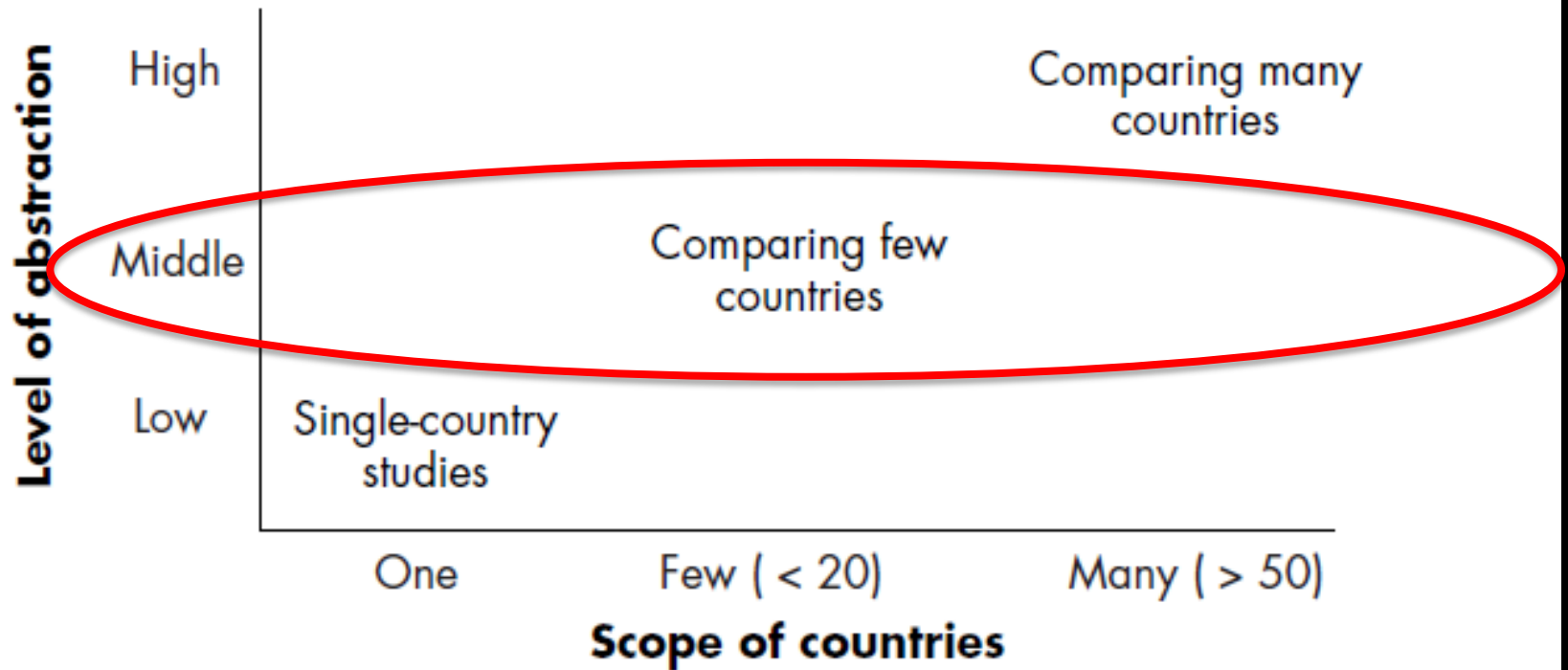
Thinking beyond the canopy

Long term socio ecological research sites for CRP6 – designing the methodology

Anja Gassner, September 29th 2012

Center for International Forestry Research

Comparative Research



Sources: Based on Sartori (1970) and Mair (1996)

The universe of landscape has been intentionally selected and is significantly smaller than a global selection



Use the “Comparing few countries” methodology

Comparison of few countries

‘case-oriented’ comparison
with the focus of the analysis is much
more on the specific unfolding of events
and variation in political developments
within each country than variation in
macro-variables between countries.
(Ragin 1987)

Ragin, C.C. (1994) ‘Introduction to Qualitative Comparative Analysis’, in T. Janoski and A. Hicks (eds) *The Comparative Political Economy of the Welfare State*, Cambridge: Cambridge University Press, 299–320.

Comparison of few countries

the method sacrifices in some degree
the broad generalizations made possible
through a truly global analysis,

but

allows a deeper understanding of the
landscapes
that feature in the analysis,
as well as their similarities and differences.

Selected landscapes show high degree of variation and are not comparable units in the classical experimental sense



Use the Most different systems design (MDSD), (Przeworski and Teune, 1970)

Design workshop

- 1. Selection of 3 nested hypothesis to be analyzed by landscape comparison**
- 2. Identification of relevant causal propositions to be studied (construction of path diagrams)**
- 3. Identification of variables/proxies/indicators that can be measured**
- 4. Brainstorming of appropriated methods to collect variables/proxies/indicators**

Key research questions in CRP6

1. Does a variation in Tree cover/Tree quality affect any of the four system level outcomes?



reduction
in poverty



increased
global food
security



improvement
of nutrition.



better
management of
natural resources.

2. What explains spatial and temporal variation of tree cover?

Using MDSD

If we find that any of the four relationships is consistent across very different landscapes we can conclude that the relationship is indeed “global”

Tree cover/quality = ? * Poverty + Residual

Tree cover/quality = ? * Food Security + Residual

Tree cover/quality = ? * Nutrition+ Residual

Tree cover/quality = ? * Ecosystem services + Residual

Nested Design

Macro-level variables

landscapes

Secondary data

aggregates

community

PRA/VC/markets

disaggregates

households

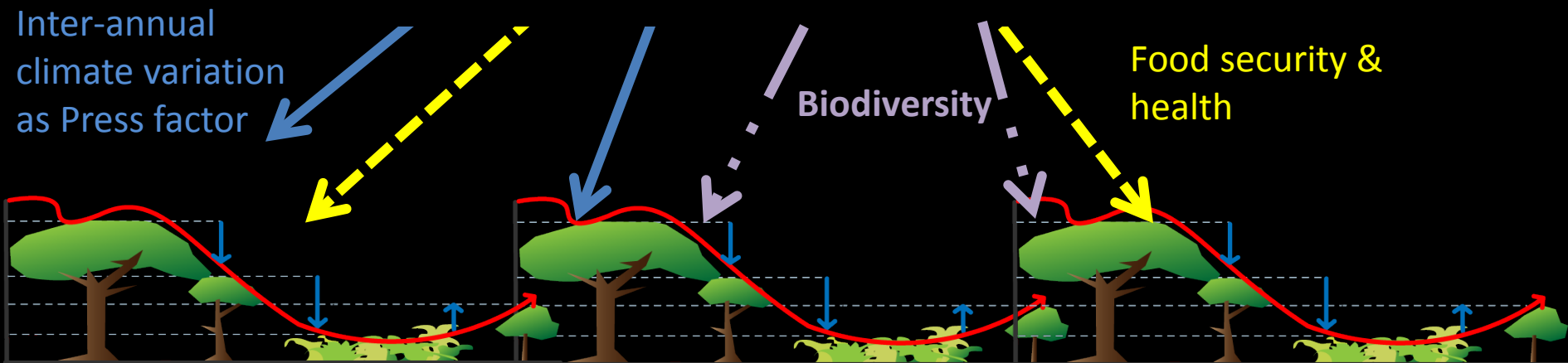
Questioners/

Core set of methods (all landscapes)

Does a variation in Tree cover/Tree quality affect any of the four system level outcomes?

Add on modules (selected landscapes)

What explains spatial and temporal variation of tree cover and tree species in each landscape?



Integrating Biophysical & Social data

3 conceptual Frameworks developed for integrating social science into the long-term ecological research (LTER) sites:

- **Drivers-pressures-states-impacts-responses (DPSIR) approach (EEA, 2005, EEA, 2007)**
- **Press/Pulse (Collins et al., 2011)**
- **socioeconomic metabolism approach (Haberl)**



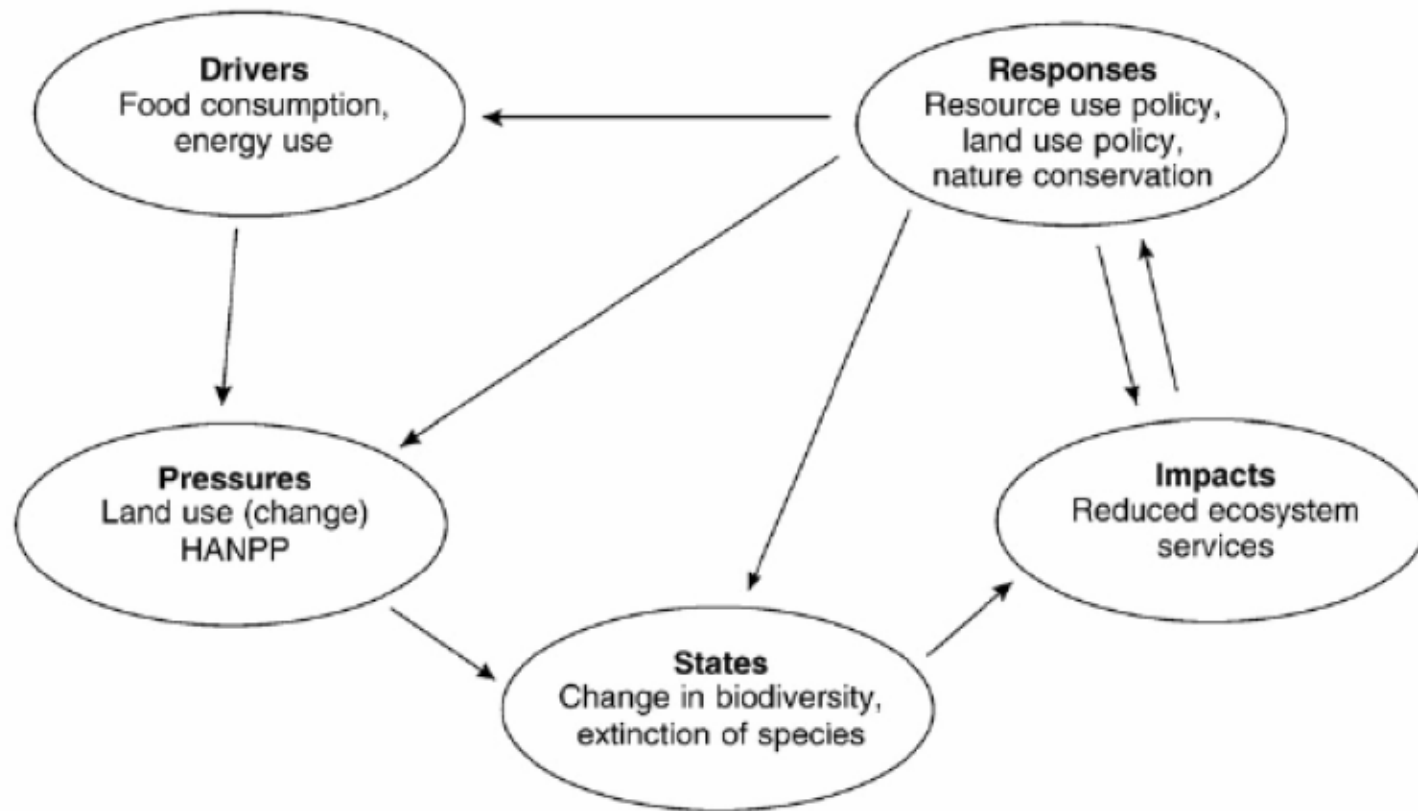
Integrating Biophysical & Social data

Underlying assumption for ALL 3 frameworks:

“Mitigation of pressures on biodiversity through modification of their underlying socioeconomic drivers is thought to be the most effective and durable option to reduce the rate of biodiversity loss”

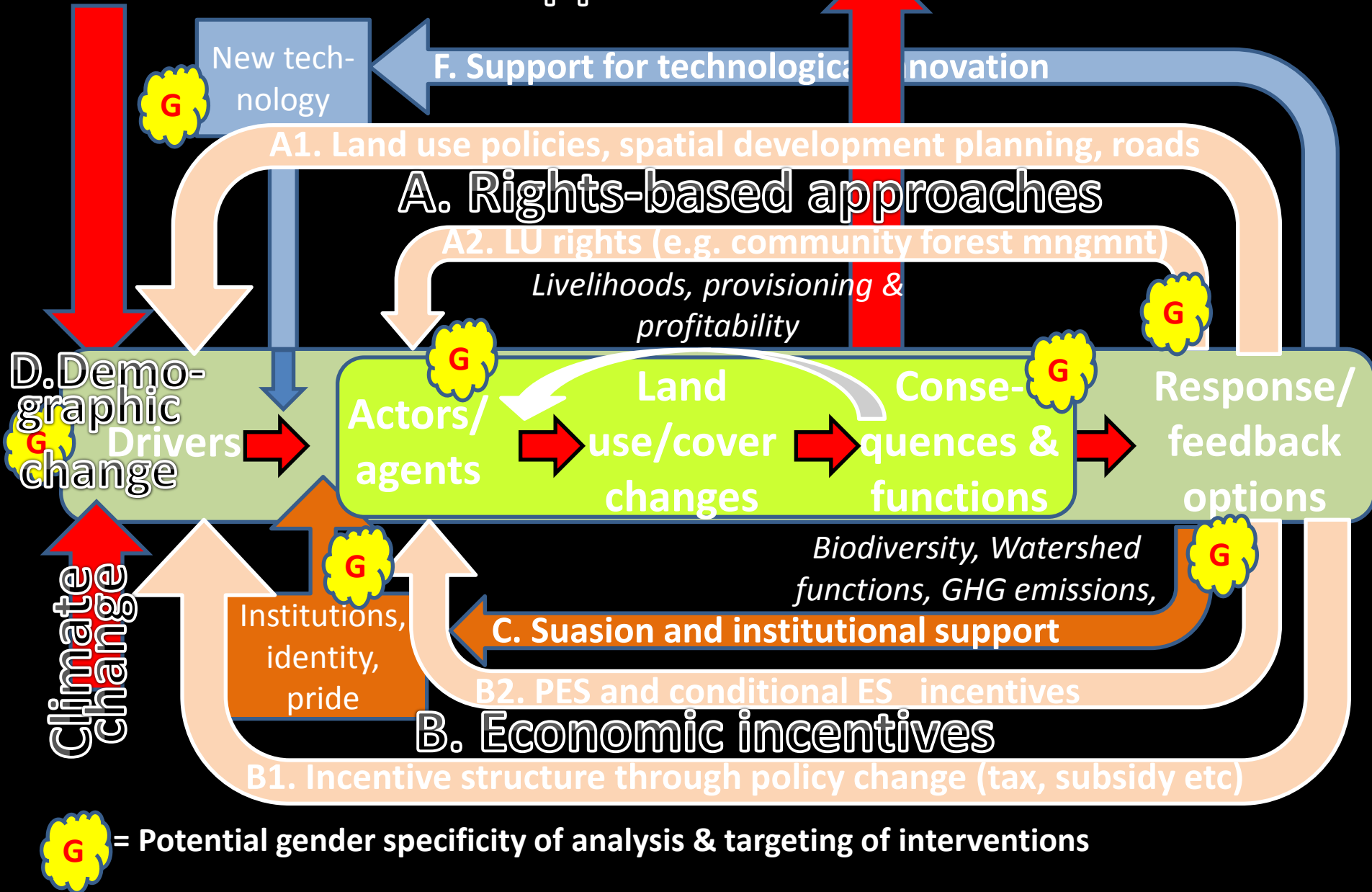


1) Drivers-pressures-states-impacts-responses (DPSIR) approach



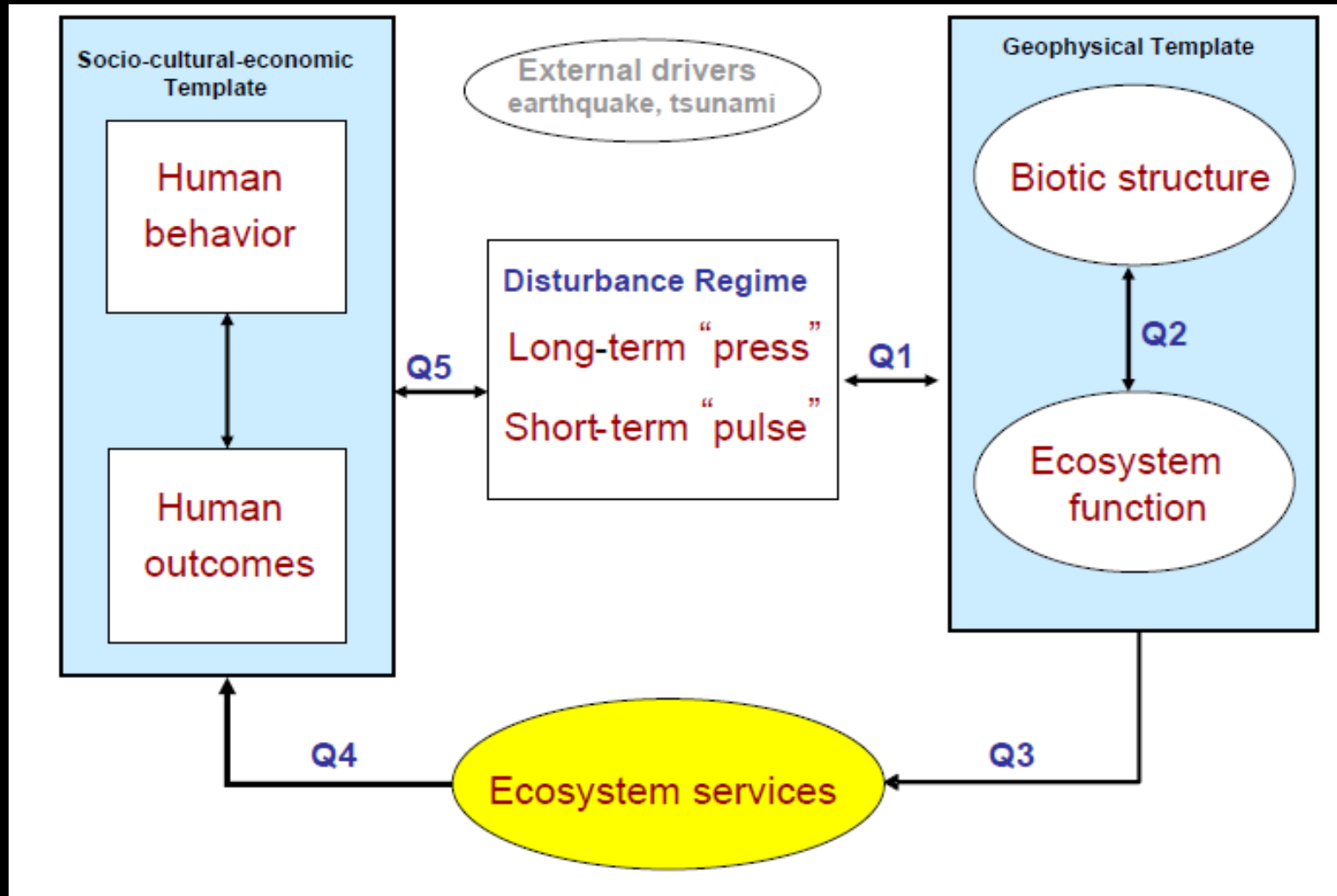
Used in CRP6 Component 3: Van Noordwijk, M., B. Lusiana, G. Villamor, H. Purnomo, and S. Dewi. 2011. Feedback loops added to four conceptual models linking land change with driving forces and actors. *Ecology and Society* 16(1): r1. [online] URL: <http://www.ecologyandsociety.org/vol16/iss1/resp1/>

E. New value chain opportunities



Modified from: Van Noordwijk, et al., 2011

2) Press and Pulse Model



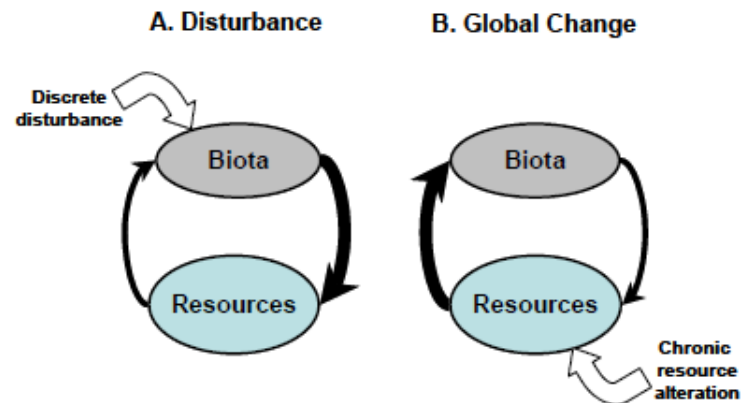
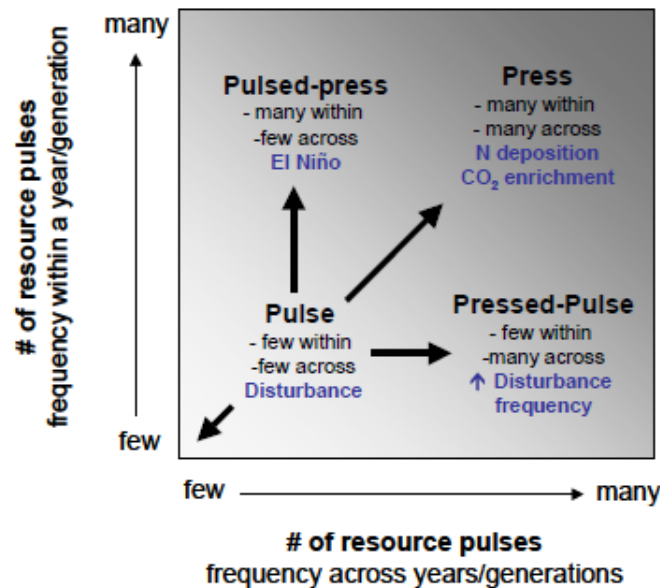
An integrated conceptual framework for long-term social–ecological research,
Collins et al., 2011

2) Separating the drivers into press and pulse events

Press factor – variable or driver that is applied continuously at rates ranging from low to high (e.g., atmospheric nitrogen deposition, elevated CO₂). Includes changes in rates (increases, decreases) relative to some historical baseline.

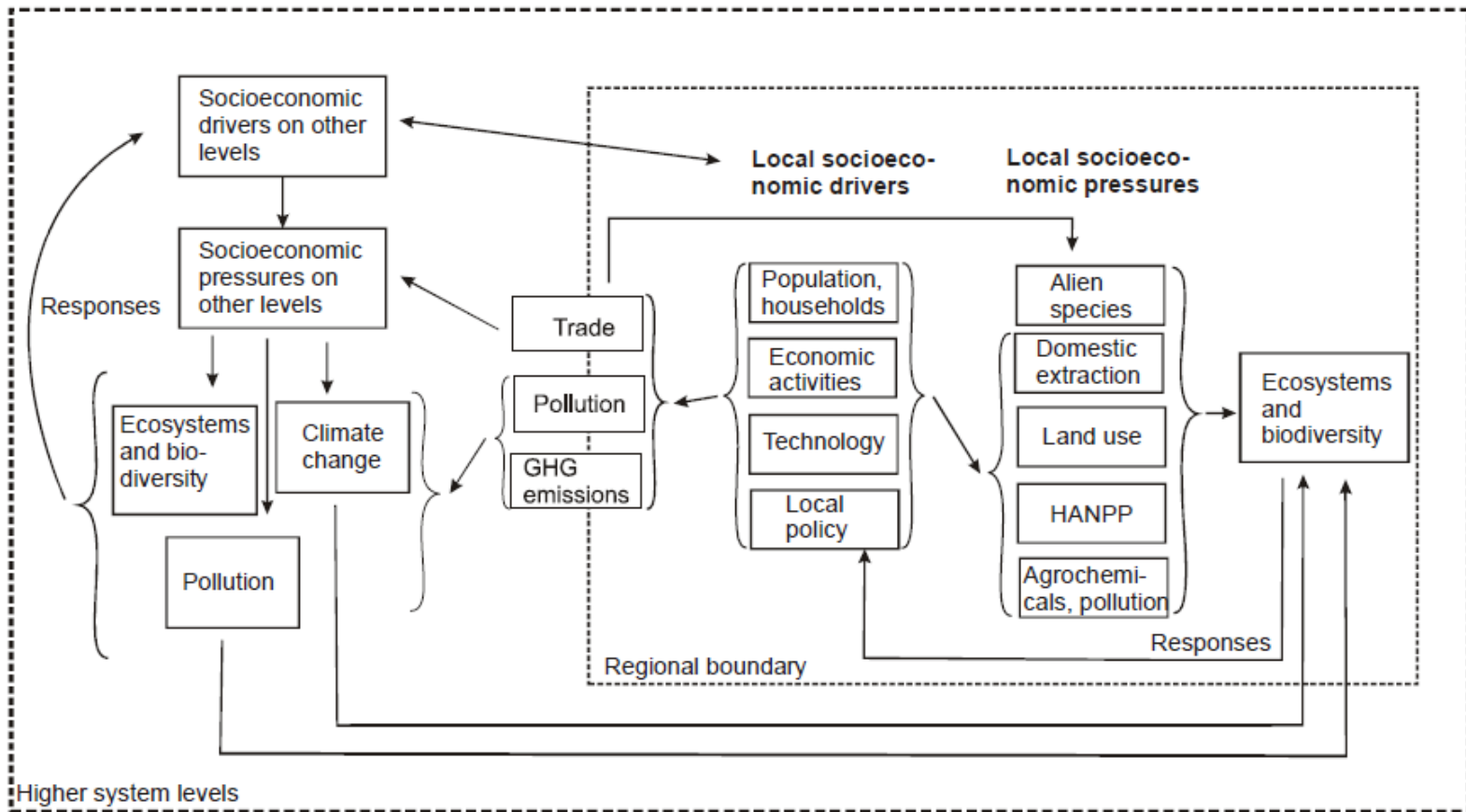
Pulse factor – variable or driver that is applied once or at periodic intervals (e.g., fire, extreme climatic events). Includes changes in the size, magnitude and frequency at which pulses occur.

Concept from Bender et al. 1984. Perturbation experiments in community ecology: Theory and practice. Ecology 65(1):1-13.

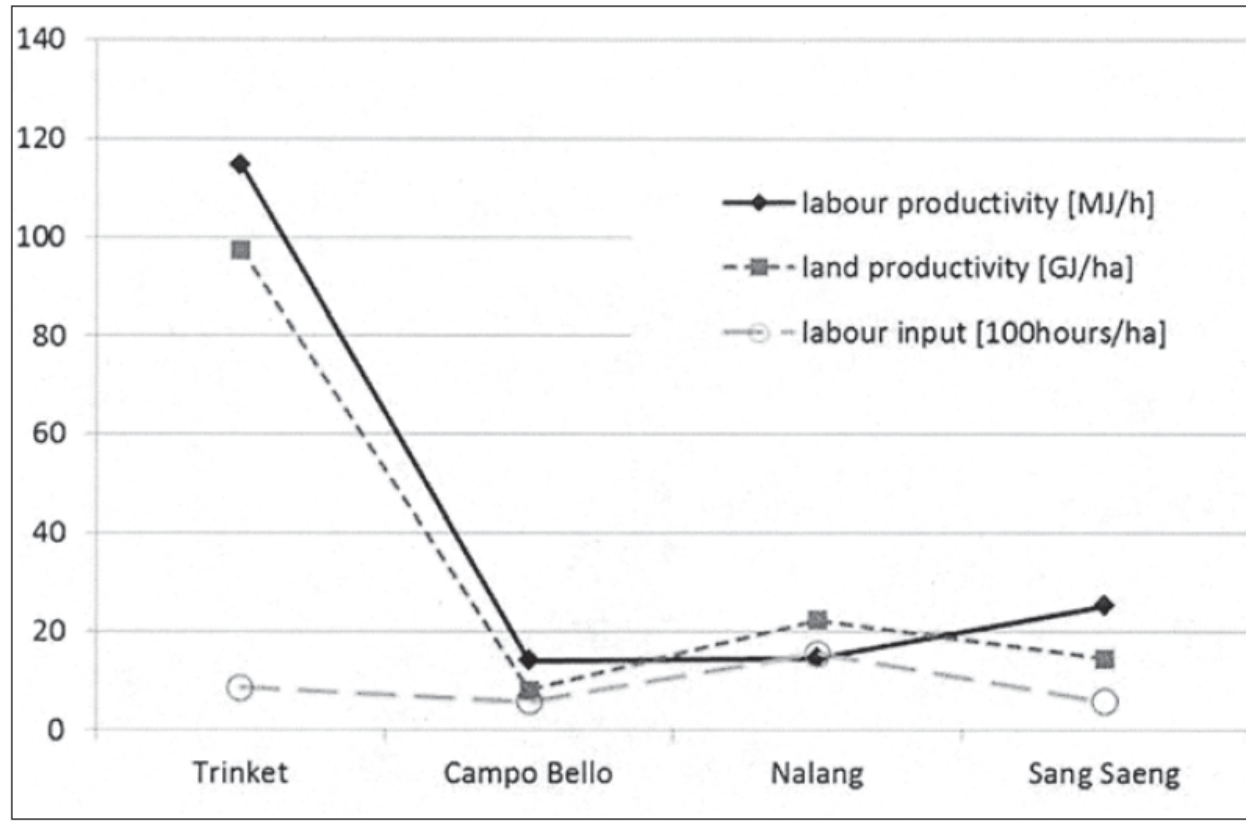


An integrated conceptual framework for long-term social–ecological research, Collins et al., 2011

2) Adding Social Metabolism as pressure factor



Human appropriation of net primary production" (HANPP) is a measure of socioecological material flows. (Haberl et al., 2001, Haberl et al., 2007a)



- Social metabolism can be quantified in terms of energetic and material flows per time period, usually a year.
- Different sociometabolic regimes have substantially different metabolic profiles
- The higher the metabolic rate the higher the impact upon the environment.

Assumption

There are common environmental and institutional factors across a set of vary different landscape that result in a similar pattern between rural livelihoods and environmental conditions (caused by tree cover change)

8 geographically bound SL

- What are the institutional settings that ensure that utilisation of forest resource result in equal sharing of benefits?
- What are the enabling factors that make people value the ecosystem service of trees?
- What are the conditions that allow farmers to significantly capitalize on tree products?

Tropical Managed Forest Observatories

1. How does the provision of different forest products and services vary across gradients of timber harvest intensity; i.e., do thresholds in response exist?
2. Are there trade-offs in management practices aiming to enhance the production of different forest products and services; i.e., do threshold points differ among them?
3. Do responses of forests vary across the region, and does this follow trends in forest functional composition?

Oil Palm Value Chain

1. What are main trade and investment flows associated to oil palm expansion?
2. What are the main socio-economic and ecological impacts from such expansion?
3. What mechanisms and incentives are more effective to reduce the negative impacts, and to promote more sustainable and inclusive business models of oil palm production?