

How to evaluate the effectiveness of agri-environmental policies on sustainable management of soil resources?

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“There are no separate systems.
The world is a continuum.

Where to draw a boundary around a system depends
on the purpose of the discussion”

(D. Meadows 2008)



SOIL!



Soils are fundamental part of terrestrial ecosystems

The services the ecosystems provide and their natural capital supplies are directly related to the condition of the soil and how sustainably it is used.



How to approach?



- Various agricultural systems:
 - intensive/extensive/organic ...
 - grazing/dairy farming/crops/fruits ...
 - different social/political/economic settings
- Agri-environmental policies:
 - agriculture depends on utilizing natural resources
 - a comprehensive agri-env governmental vision?
 - or two separated administrative topics?



„We should stop striving for simple answers to solve complex problems.

The problem of overharvesting and misuse of ecological systems are rarely attributable to a single cause“

(E. Ostrom 2009)



Rio +20 outcomes



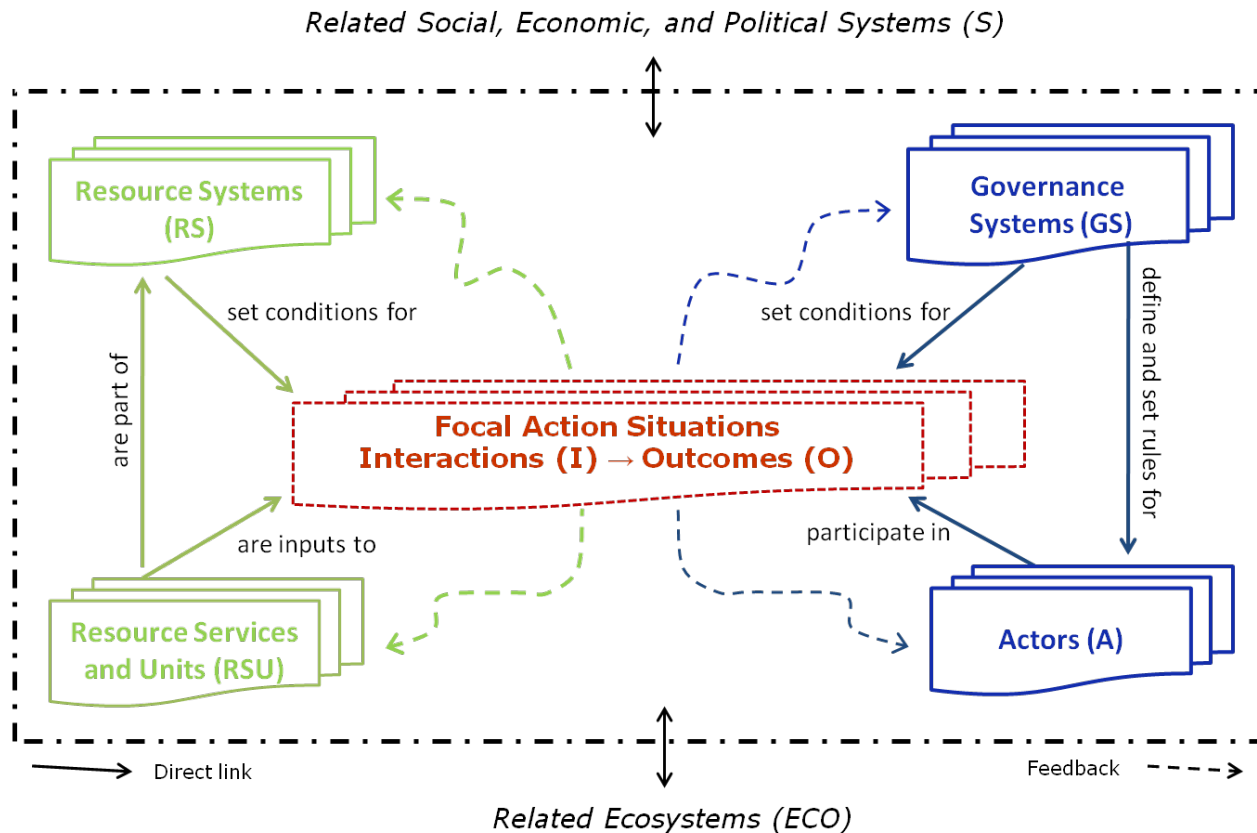
- Art 13 –

We recognize that people's opportunities to influence their lives and future, participate in decision making and voice their concern are fundamental for sustainable development.

We underscore that sustainable development requires concrete and urgent action. It can only be achieved with a broad alliance of people, governments, civil society and private sector, all working together to secure the future we want for present and future generations

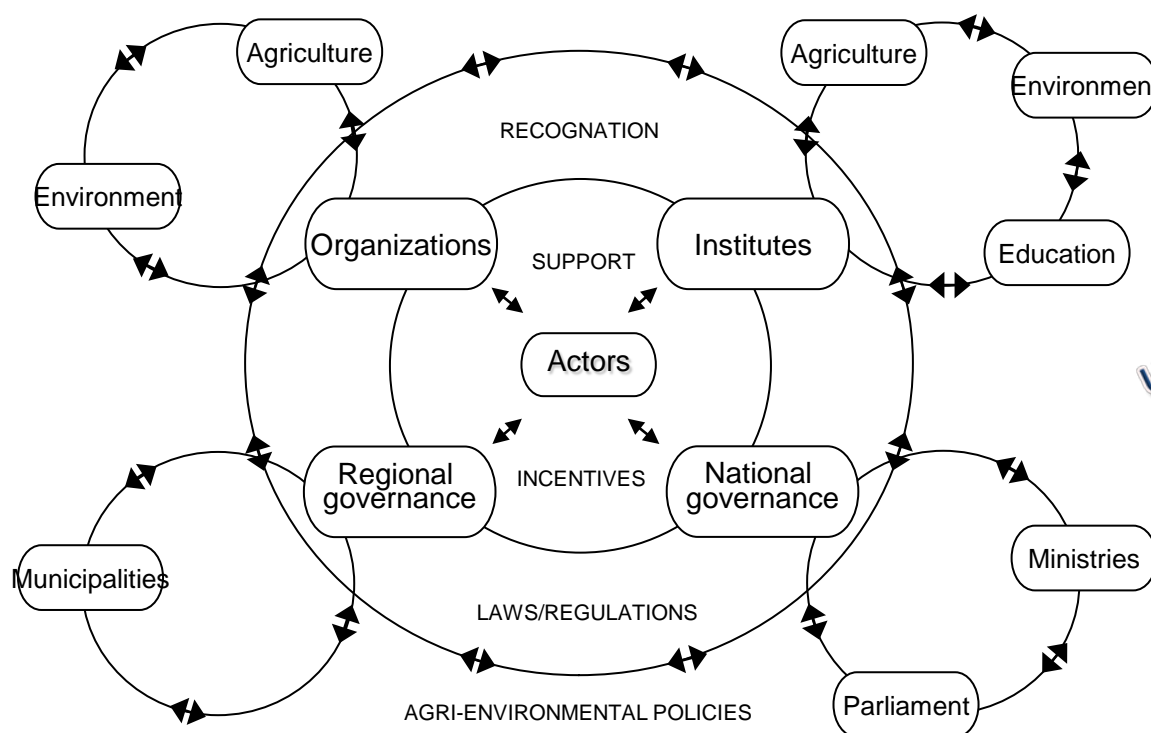


A social-ecological system approach



(McGinnis 2012)

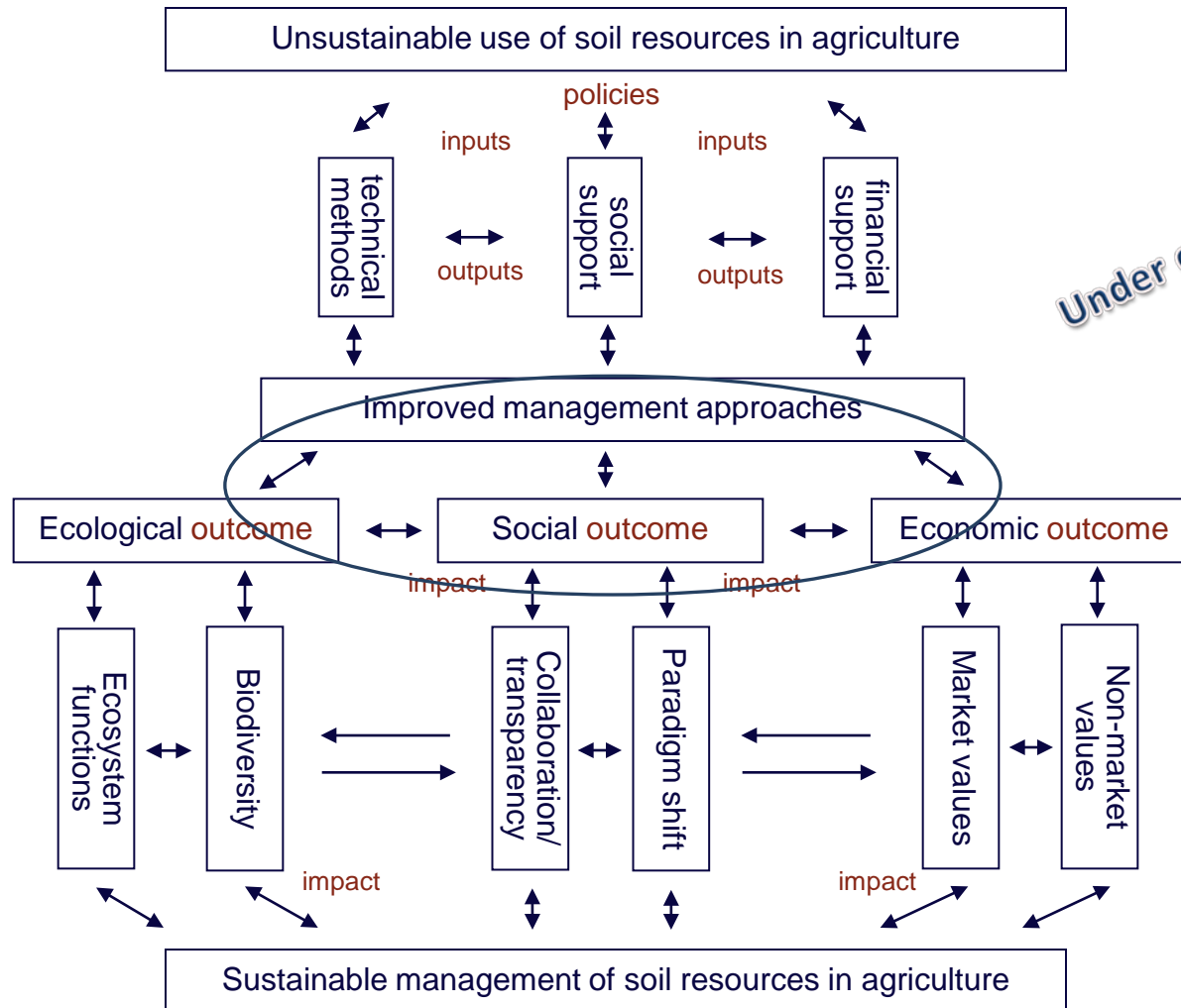
The social system of a SESs framework



Under construction...

(Petursdottir et al. unpublished)

Sustainable use of soil resources in agriculture



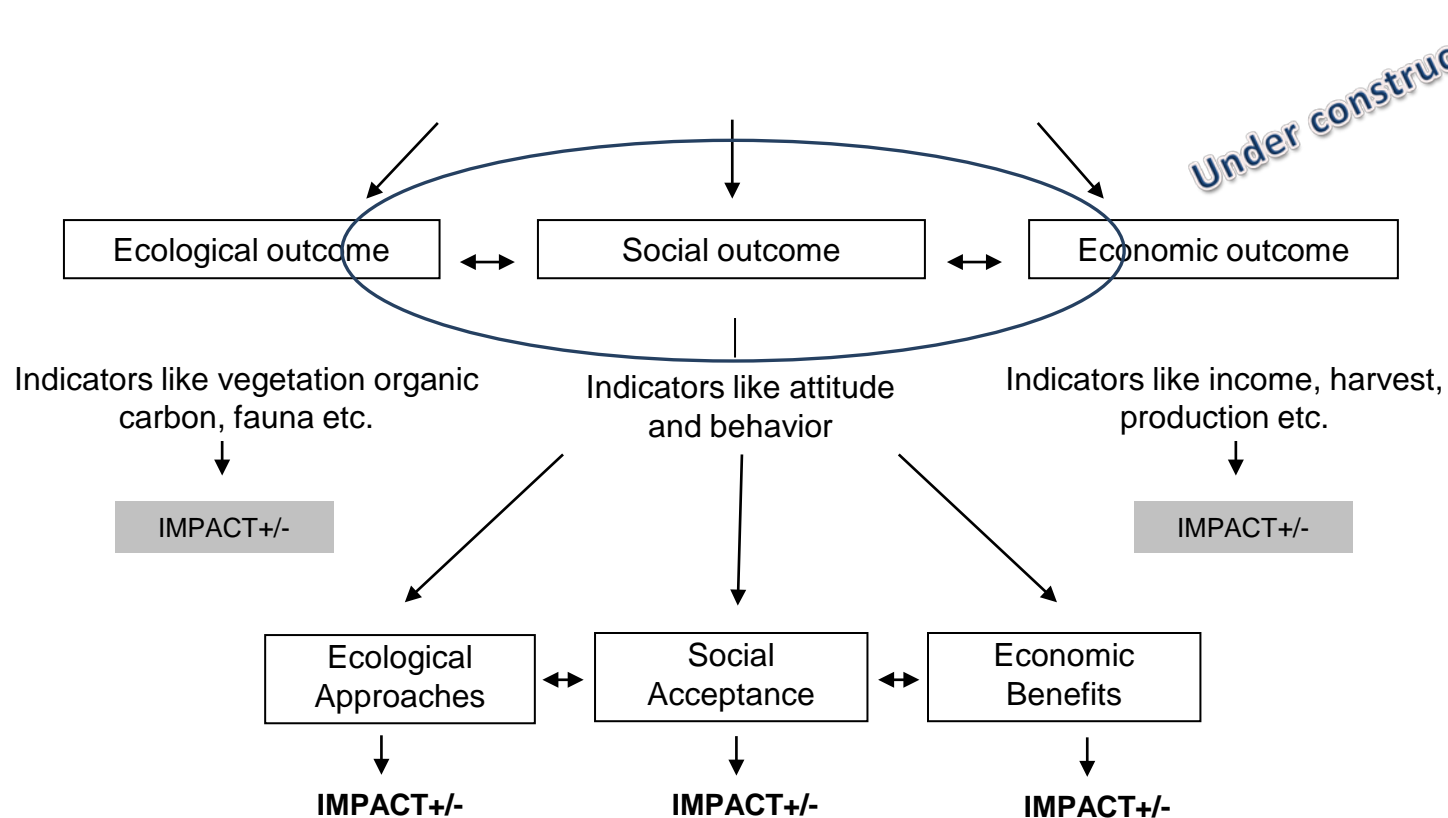
Under construction...

"It is inconceivable to me that an ethical relation to land can't exist without love, respect, and admiration for land, and a high regard for its value."

"...By value, I of course mean something far broader than mere economic value; I mean value in the philosophic sense." (Aldo Leopold)



Focusing on the social outcome



(Petursdottir et al. unpublished)

Paradigm shift?

Categories and indicators



Identifying different stakeholders' attitude and how the actors are implementing soil management.

Selected by defining the main targets of agri-environmental policies related to sustainable land resource management with the focus on soil management practices

Under construction...

Ecological approaches attitudes towards:	SPECIFIC INDICATORS			
Purpose	Nature conservat.	Biomass product.	Ecosystem service	Aesthetic
Methods	Use of fertilizer	No tillage	Use of OM	Time of fertilizing
Outcomes	Native vegetation	Novel vegetation	Soil quality	Biodiversity
Utilization	Season	Period	Pressure	Conservation
Social acceptance attitudes towards:	SPECIFIC INDICATORS			
Collaboration	Local/reg/nat	Actors	Actors/gov syst	Within gov syst
Advisory	Single topic	Integrated topics	Information flow	Local knowledge
Incentives	Direct use	Indirect use	Importance	Share
Policies	Focus	Integration	Hierarchical levels	Power/authority
Economic benefits attitudes towards	SPECIFIC INDICATORS			
Added values	Land price	Production	Aesthetic	Income
Ecosystem services	Soil quality	Biodiversity	Water quality	Productivity

(Petursdottir et al. unpublished)

- The most important leverage points for improved soil management practices are related to social factors like rules, information transfer and paradigm constructed around the related SESs system
- The attitude of the related stakeholders and the level of efficiency within the governance system may facilitate improved management activities or cause dysfunction within the SESs system
- A major undertaking is to understand the dynamics of differently structured SESs – what increases or decreases the systems' sustainability?



- Power relation and vested interests can become the main drivers of a governance system without bringing gains in legitimacy or new policy options

Niedzialkowski et al. (2012)

