

Towards long-term socio-ecological research platforms: concepts, approaches and links to biodiversity (Haberl, H., Mirtl, M.)

a minute and an interpretation by Sabina Datcu

The “long term socio-ecological research” is a very important concept in the present. In the moment in which the scientific community understood that the socio-economic system has to be viewed in relation with the ecological systems, as a whole, and both have to be placed in space and time, the need of having integrate long term research and multidisciplinary became obviously.

The presentation stressed this aspect of the integrative way (integrate more disciplines) and the needed for long-term socio-ecological research and research infrastructure, and this explain the ongoing process of transition from LTER sites to LTSER sites.

There are three main dimensions that have to be taken into account:

- 1) the socio-economic system
- 2) the biodiversity
- 3) the ecosystem functions

The LTSER sites have to “produce” knowledge, in order to provide answers/solution in the problem of sustainability. The sustainability is understood in this context as a society-nature interaction and co-evolution. This means that the natural capital should be able to sustain the metabolism of the socio-economic systems. Applying this now/in the present, when there is a certain transition from the agrarian to the industrial society (that implies also, changes into land-uses), this means that the natural capital has to sustain the socio-economic system in its transition. (ie: energy: from land-based to fossil fuels)

Approaches:

1. “classical” LTER site – corresponding to an ecosystem
2. “extended” LTER site – ecosystem + a part of the socio-economic system
3. MFRP “multi functional research platforms” - ecological system + socio-economic system

LTSER:

- socio-ecological metabolism
- land-use and landscapes
- communication
- governance

Example of MFRPs:

Eisenwurz (Austria) – 5522 sq.km

- *plant forest*
- *industrial history*
- *long-term data in the sites*

- *infrastructure available*

From LTER sites to LTSER platforms:

- use existing monitoring and research facilities; multidisciplinary
- multi-scale approach
- include stakeholders in the process
- natural and administrative boundaries

Example of interaction between ecological systems and socio-economic system:

HANPP (Human Appropriation of Net Primary Production) - indicator of socio-economic system's metabolism impact over the natural system; it can be studied across the time and on any spatial scale; Correlations between biodiversity and NPP at all scales.

$$\mathbf{HANPP} = \mathbf{NPP}_{\text{potential vegetation}} - \mathbf{NPP}_{\text{remaining after practices}}$$