

ÖSTRA VÄTTERBRANTERNA

Resilience in Social-ecological system (SES)

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Abstract- Östra Vätterbranterna

On the east side of Lake Vättern, in southern Sweden, lies an important area of high biodiversity, "Östra Vätterbranterna". A long practice of small-scale agriculture and forestry, combined with a special lakeside climate contribute to a mosaic of cultural land and deciduous forest. A project, Östra Vätterbranterna, was established 1998, with the goal to manage the biodiversity and the cultural landscape. The paper applies resilience theory and investigates if the management regime and governance structure enhance resilience in SES. The management and governance include components of resilience such as knowledge building and bridging, trust building, conflict mechanisms, and highly developed collaboration. The project indicates high social capital among the members of the group and an ability of self-organization.

Key words: resilience, social capital, adaptability, collaboration, trust-building

Abbreviation

SFA Swedish forest agency

CAB county administration board

ÖVB Östra Vätterbranterna

Introduction to social resilience and Östra Vätterbranterna (ÖVB)

Resilience theory has mainly been focusing on absorbing shocks, but there is another important component of resilience and sustainability, and that is the capacity for renewal, reorganization and development. There has been progress on how the social dimension of the social-ecological systems deal with uncertainties and change in the dynamics of the ecosystem, including organizational and institutional flexibility (Folke 2006). The social system contains rules and institutions that influence the resource use as well as the interpretation of nature that is made up of the system of knowledge and ethics (Berkes and Folke 1998). The social system is, as the ecological system, a complex system that can be resilient or not resilient and can be in a desired or in an undesired state.

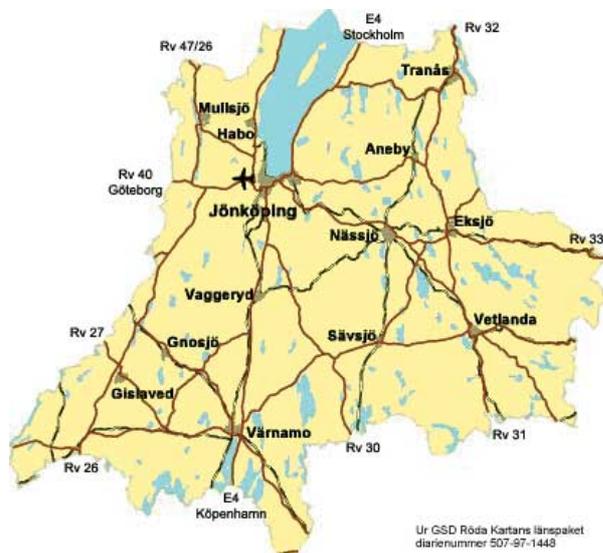
On the east side of Lake Vättern, in southern Sweden, lies an important area of high biodiversity. A long practice of small-scale agriculture including haymaking, grazing and lopping of tree branches, combined with a special local climate by the lake, contribute to a mosaic of cultural land and deciduous forest with high biodiversity. Today a project, "Östra Vätterbranterna," (ÖVB) is underway to protect the biodiversity and the special biota in the area (Asp and Jonsson 2002). The ÖVB is used as a case study to apply the theory of resilience to the social domain of management and governance (see also resilience theory applied on ecosystem and ecosystem management, appendix 1). The resilience of the social system is mainly determined and described later on in this paper by: social capital, collaboration, knowledge building and knowledge bridging, and adaptability. The introduction of social resilience thinking and the presentation of the case study lead into the questions for this resilience paper: *Is the management regime and the governance of the present project social resilient?*

Method

Much of the information concerning the social system in ÖVB was taken from the report "*Projekt Östra Vätterbranterna*" (Asp and Jonsson 2002) and from an interview with a project organizer from the Swedish forest agency (Skogsstyrelsen). The interview was done over telephone without recording; therefore misunderstandings could not be detected afterwards. A literature review of articles and books, providing information concerning resilience applied on social systems were used. These were used to explain the components to determine the social resilience. To identify the social system in the case study area the method of CATWOE, a tool in the Soft system methodology was used. The method is used to bring an insight of the system theory of social systems, by detecting the diversity of norms, perspective and relationships (Basden and Wood-Harper 2006).

Case Study area

The borders of the "ÖVB" social system of the management are different than those for the ecosystem (see appendix 1), which comprises a bigger area. The borders of the social system are the same as the borders of the county of Jönköping (picture 1).



Picture 1. The county of Jönköping (Lantmäteriet 2004)

By using the method of CATWOE the stakeholders and their interests, the specific actors in the management and on what organizational and ecological level those actors operate on, are identified. In the case study the formal institutions such as laws and rules that the actors of the project can use as a framework are recognized (see table 1). The transformation (see table 1) is referred to as the desired outcome of the project. In this case it is to prevent further loss and maintain the biodiversity and the culture landscape.

Table 1. The social domain of Östra Vätterbranterna management, structured by the CATWOE model (modified from Basden and Wood-Harper 2006).

<p>Customers: the victims or beneficiaries of transformation</p>	<p>Farmers (LRF), locals, tourist companies, the county administration board (CAB), Swedish forest agency (SFA), forest owners (Södra), forest group of Gränna (branch of the NGO Swedish nature protecting organization) (Jonegård personal communication)</p>
<p>Actors: Those who do the transformation</p>	<p>Project group National level: World wildlife fond Regional level: CAB and SFA Local level: forest group of Gränna and the community of Jönköping Reference group Local level: LRF and Södra. (Jonegård personal communication)</p>
<p>Transformation process: the conversion of input to output</p>	<p>Informative meetings with members of LRF and Södra. Planning new nature reserves. Inventories determining the biodiversity. Project group with represents from the involved organizations works as a forum for solving conflicts. (Jonegård personal communication)</p>
<p>Weltanschauung: The world-views which makes this transformation meaningful in context</p>	<p>Biologists in the forest group of Gränna and in CAB Farmers with old traditional small-scale farming Forest owners with ecological knowledge in Södra and SFA (Jonegård personal communication)</p>
<p>Owners: those who are having a prime concern for the system and the ultimate power to cause the system to cease to exist.</p>	<p>LRF and Södra (Jonegård personal communication)</p>
<p>Environmental constraints: features of the system's environments and/or wider systems which it has to take as "given".</p>	<p>International level: EU policy concerning open landscape National level: Productions goal and environmental goal in the forest policy Regional level: policy of the county administration Local level: 10 nature reserves with different management plans (Jonegård personal communication)</p>

Analysis and discussion

To determine if the social system of ÖVB is resilient or not, this paper will include different aspects of social resilience and see if they exist in the current management regime.

a) **Knowledge building and knowledge bridging**

On the local level individuals respond to changes in their environment. Adaptive system requires mechanisms to facilitate and learn from those experiences of change in order to develop innovations. These mechanisms are collaborations, which provide a flow of strategic information. Building knowledge is crucial for a management system to be truly adaptive, to build a bridge to action, and for self-organization (Westley 1995). There are several activities today to build up knowledge and bridge the knowledge to action in ÖVB. All initiatives so far have been coming from SFA, CAB and the forest group. These are: an "eco bus" for children in school to get familiar with the ÖVB, informative meetings concerning the cultural landscape and the forest, interviewing locals concerning loping trees, an exhibition about ÖVB in the local museum of Gränna. There are also plans to create an information node outdoors that would provide information about ÖVB and about the existing footpaths in the area (Jonegård personal communication).

b) **Collaboration:**

Collaboration leads to decisions with higher value because they are more likely to be implemented, and it also prepares the social system for future challenges (Wondoleck and Yaffee 2002: Ch2). Wesley (1995) illustrate that less hierarchical organizations, *adhocracies*, facilitate the collaboration and adaptation because individuals have freer positions within the organization (Wesley 1995). The project group have no formal hierarchical structure and can be seen as an *ad hoc* project. The opinions of the members have the same weight, because all have an important roll in the transformation as initiators or as implementers. There are horizontal collaborations on the local scale between Södra and LRF in the reference group. On a regional level, the horizontal collaboration is between CAB and SFA has increased since the start of the project. There is a clear vertical collaboration in the project group that results in a high rate of implemented decisions.

c) **Social capital:**

To build knowledge and make bridges to action requires functioning social bonds and norms within a community and between different stakeholders and organizations, this is referred to the social capital (Pretty 2003). Four different features are suggested by Pretty (2003) to determine the social capital of a social-ecological system: relations of trust; reciprocity and exchange; common norms, rules and sanctions; and connectedness. Social capital lowers the transaction cost when actors are working together (Pretty 2003). In a situation where trust is lacking, for a government or within a group, the individual responsibility for a common property resource is reduced. The trust can be rebuilt in governmental institutions, within the group and individual responsibility can be increased through collaboration in resource management (Wondolleck 2002:Ch1). Key-persons in the social network encourage communication and trust-building for a good collaboration between stakeholders (Hahn et al. 2006). The project was a top-down initiative by SFA and CAB because there were conflicts and lack of trust between the forest group of Gränna and forest owners. The forest group were doing inventories in the forest areas, and the forest owners tried to stop the inventories because of expected restrictions for the present forest management (Jonegård personal communication). The project group was established in 1998 to solve the issue and to be able to protect the biodiversity in ÖVB (Asp and Jonsson 2002). Today, the project group have no rules or sanctions- it all comes down to a win-win solution, or if there is no agreement, a "lose-lose" situation. If there is a conflict the issue is discussed around a table and everyone listens to each other and exchange different views. There is no strict decisions taken, but by the trust-building processes the informal decisions are followed and implemented (Jonegård personal communication).

d) **Adaptability**

According to Folke (2005) it is crucial, within management, to have the ability to interpret feedbacks from the ecosystem and to understand changes in the conditions and state of that ecosystem. Through adaptive governance, the social system can build up capacity in the face of a change in an ecosystem state, and make it possible for the social system to be self-organized. Different social sources make it possible to respond, change and transform the social system to be adaptive to the ecosystem (Folke et al. 2005). The project was created because there was a change in bio diversity and conflicts were arising because of the issue

(Jonegård personal communication). To this extent, the social system of ÖVB was self-organized and helped resolve the problem. Trust continues to be built, and new innovations occur. The ability of adaptation in the project is limited by the constant structure of stakeholders. The manager of the project is now planning to let more people in the project, as locals, entrepreneurs and locals from the other side of the county borders to broaden the perspective and encourage new projects and ideas (Jonegård).

Conclusions

The social domain of SES can be considered as resilient because there is an effective collaboration among the actors. Since 1998, the ÖVB partnership has built up the social capital in terms of the trust, common norms, reciprocity and exchange shared amongst members. The present structure is changing and now expanding. With more members may contribute with more ideas and innovations and the cost of adaptation and transformation will be rather low. The project is depending on the implementation of the informal decisions. If the trust were to erode, the management would fall apart because of no real formal decision. The current knowledge building and bridging secure the future management regime. The projects being undertaken today shows that the knowledge and common goal of ÖVB is stable and forms a platform for future challenges. Prior to 1998, the management regime was in an undesired state but it has successfully developed to a desired one.

Future focus activities for ÖVB should be for the project group to include more organization and stakeholders in the project and reference groups, to encourage more projects, and to broaden the worldviews of the participants. Inviting more people into the project might result in a new process of trust-building, but the resilience of the management structure and the transformation of the system will be secured.

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