

4.2 Social Networks among Stakeholders

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Managing resilience involves cooperation and conflict negotiations among the various stakeholders and agencies in the focal system.

Such processes are facilitated by an understanding of the configurations of social relations among the actors, i.e. the existence of social networks. However, not all networks are created equally and understanding who talks to whom, and conversely which actors are not communicating, matters for how well the social networks may facilitate the collaborative processes.

Key Messages

- Many different social networks exist simultaneously and independently of each other, i.e. actors can have several different types of relations and depending on which relations we are interested in the structure of the network will differ.
- There are many different structural characteristics of any given network. These characteristics influence processes and management outcomes. [Social Network Analysis \(SNA\)](#) focuses on how the structure of ties affects individuals and their relationships.
- There is no optimal structure. Different network characteristics facilitate different processes which are important at different stages of a governance process. Depending on the specific challenges facing a social-ecological system, different characteristics may be more beneficial than others.
- The structures and functionality of the networks strongly influence the adaptive capacity of Social-ecological systems.

Social Network Analysis (SNA) has emerged as a key technique in modern sociology to map social relations among individuals or organizations. Rather than treating individuals (persons, organizations, states) as discrete units of analysis, SNA focuses on how the structure of ties affects individuals and their relationships.

Resilience Assessment

In a previous section, critical actors such as primary management agencies and key stakeholder groups in the region have already been identified. You will also have identified individuals or organizations that have key leadership roles.

Here, our focus is on the actual patterns of relations among the identified actors (individuals, organizations and other agencies) in the system of focus. Mapping all possible relations among all the different actors is, however, a big task if there are many actors involved. In some cases, such complete mapping might be feasible, whereas in other cases one has to start at a higher level of abstraction. This means that rather than trying to map social relations among individuals, one might have to settle on mapping contacts or ties between groups instead.

Ideally, the network is mapped by asking each and every actor about their relations with others, and the complete network is created by merging all reported relations. In practice however, one often has to rely on key informants to map the complete network. These informants are asked about the relations between other actors in the system, as well as their own. The former approach provides more reliable data, but the latter requires less interviews and can often still provide adequate data, at least as a starting point. As with all other parts of this workbook, it is important to adopt an iterative approach in working towards an emerging social network description and understanding.

When a social network has been mapped, there are a number of analyses that can be undertaken to understand how the structure of the network may facilitate or hinder governance efforts, and thereby resilience. Here we focus on three different types of analyses; the number of relations between actors, centrality of actors in the network, and the existence of cohesive subgroups. The archetypal network structures associated with each are shown in Figure 4.2.

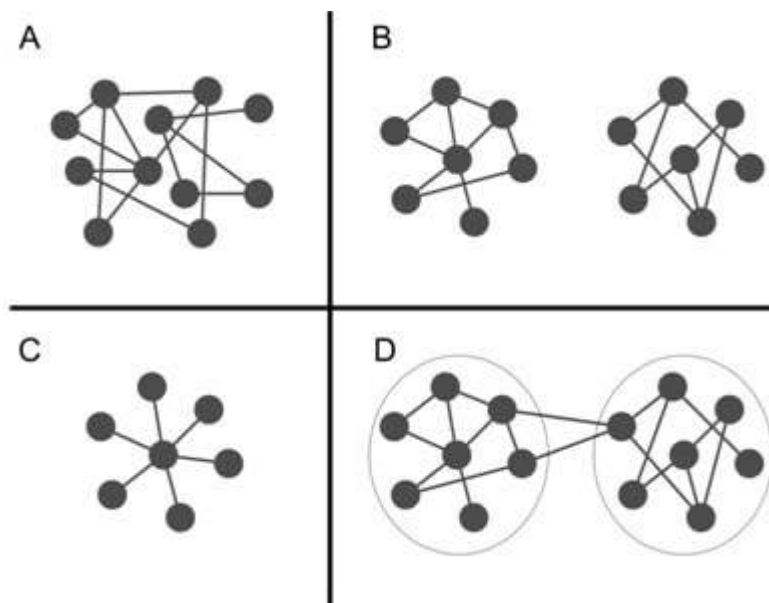


Figure 4.2 Schematic presentation of some archetypal network topologies. (A) represents a network without any clearly distinguishable subgroups (high cohesiveness), whereas (B) presents a network that is divided in two isolated subgroups. (C) represents a highly centralized network (the node in the middle has much higher centrality than the rest of the nodes), and (D) presents a network with two distinguishable groups (dotted lines), which are interconnected via two bridging ties.

To turn a set of isolated actors into a set of interacting actors, social relations have to be created among them (Figure 4.2a). Thus to a degree, more social ties means more possibilities for joint action and other kind of collaborations that can help actors avoid fierce resource conflicts and instead facilitate the development of common resource regulations. In mapping the social network of your system it is therefore important to note if there are certain actors which do not seem to be linked to others.

- Thus, are there key people or groups of people who are not connected to others?
- Why (and how) could this be? And how can this affect the potential for solving resource conflicts, reaching consensus on management strategies, etc?

Mapping the structural characteristics at the level of whole networks is valuable. However, it is often equally relevant to understand how individual actors (or groups) can use their structural position to influence the natural resource governance process. By occupying certain central positions in a social network (Fig. 4.2c), actors are able to exert influences over others in the network, and are better situated to access valuable information which can put them at an advantage. Central actor can also benefit more peripheral actors if they function as information hubs which collect and coordinate information, innovations and new ideas from the periphery of the network. An example of this are centrally positioned farmers who engage in information acquisition and development of ecological knowledge, while also passing this information on to other farmers in their personal networks.

- Are there any highly central actors in the network?
- To what extent do highly central and potentially influential actors represent the views and interests of the other stakeholders?
- If it is a strong feature, is it a source of social cohesion, or a potential problem in achieving it?
- A central actor may act as a bridge linking otherwise separated groups (cf. "bridging organization"). Are there any such actors in the network, and do they act as bridges or as barriers in promoting the resource governance process?

An important characteristic of a social network is the level of cohesion, i.e. to what extent the network "hangs together" instead of being divided into separate cohesive subgroups. The existence of subgroups can pose challenges for joint action aimed at governing a common natural resource, due to the risk of "us-and-them" attitudes among actors (Fig 2 B and D). But individual subgroups can also be important settings for generation and sharing of knowledge about the system. Therefore understanding the characteristics of the various subgroups of actors in your network and the resources they could contribute to the collaborative process is important. It is equally important to understand which groups are not well connected and what could be gained by facilitating such connections (e.g. transfer of local knowledge, knowledge of policy development processes, etc.).

- Are there multiple groups of actors, or are all actors connected within one large group? What might be the implications of this in terms of achieving social cohesiveness versus upholding heterogeneity and specialized knowledge and expertise?
- Are there isolated sub-groups? Do they pose a barrier to social cohesion?
- Who are the actors in the groups? What kind of commonalities defines group members (occupation, ethnicity, level of education etc)?
- How would an increase in the connectivity of sub-groups in a network influence the social process in focus (e.g. information sharing)? What would be the benefits, and the potential risks?

Theory - Social Networks

History, contemporary science, and politics all suggest that joint management and governance processes can be difficult to achieve in practice. To address contemporary natural resource problems it is therefore imperative to better understand how collaborative barriers can be

overcome. The existence of social networks (Figure 4.3) can improve collaborative governance processes by facilitating:

- (i) the generation, acquisition and diffusion of different types of knowledge and information about the systems under management;
- (ii) mobilization and allocation of key resources for effective governance;
- (iii) commitment to common rules among actors fostering willingness to engage in monitoring and sanctioning programs;
- (iv) resolution of conflicts

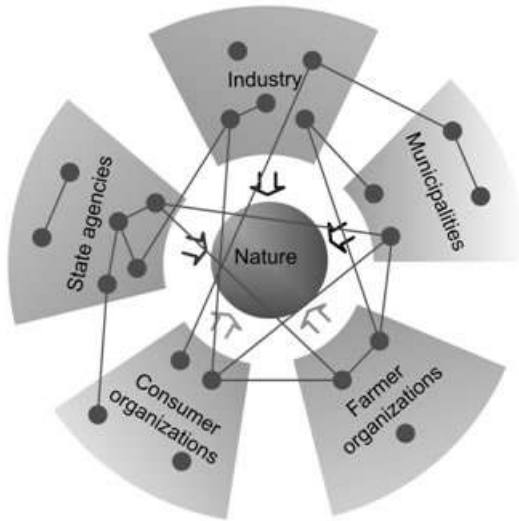


Fig. 4.3 Different sectors of society involved in the use and management of the natural environment are represented as different triangular slices. The dark-gray dots represent individual organizations or persons (i.e. actors) within each sector, and the lines represent relational ties among these. These relational ties can contribute to better natural resource governance by, for example, facilitating coordinated actions among different actors.

However, all social networks are not created equal. The structural pattern of relations can have significant impact on how actors actually behave. Hence, the structure of the network will influence the collective behaviors of the actors.

These insights are of relevance when analyzing various actors' abilities to manage environmental challenges. Thus, by mapping and analyzing the networks of social relations among stakeholders in your system, important insights can be gained about defining social structures and processes, such as distinguishable subgroups and information exchange, all of which are of crucially importance for explaining, and possibly improving, governance outcomes.

It is important to acknowledge that the pattern of relations between actors will differ depending on which network is in focus, i.e. depending on the type of relations involved. The ties of a network of close kin will convey different resources compared with a network of work colleagues. Similarly, a network for transfer of ecological knowledge is different from a network of relations used for accessing fishing gear. Therefore, when studying social networks, it is important to specify which kind of relations you focus on, and how they relate to the governance issue at hand.

Cross-scale linkages and networks

A particular case when the existence of social network seems to be of high importance is when linking different organizations and institution operating on different hierarchical and/or geographical scales. Here, the possible existence of key actors and linkages that connect different scales (i.e. bridging actors/organizations and bridging linkages) are crucial, and those can potentially be both identified and defined by studying the structures of different social networks.