

Using stakeholder and social network analysis to support participatory processes

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INTRODUCTION

There is growing awareness that effective management of socio-ecological systems requires close collaboration between research disciplines, policy-makers and stakeholders at all levels to strike a balance between different (potentially conflicting) perspectives and objectives. To facilitate this, a range of participatory research methods have emerged in recent years that have gained mainstream acceptance in many policy and research circles. However, the limitations of participatory research are increasingly being recognised. For example, participatory research can reinforce existing privileges, and group dynamics can discourage minority perspectives from being expressed, thus creating a ‘dysfunctional consensus’.

Appropriate stakeholder selection is a key challenge for participatory research. Participatory approaches to conflict management must be as inclusive as possible to avoid marginalising stakeholder groups, and this is a challenge with the small sample sizes that are usually used to attain depth of understanding in participatory research. The limitations of statistically representative surveys with large sample populations are widely recognised, but a participatory process can only be legitimate and effective if it represents all sides of the debate. The participatory literature proposes a variety of ways to select representative participants, but few of these are without problems. To address these challenges, this paper proposes an approach to select participants who are: (i) representative of the wider stakeholder community; (ii) likely to

engage constructively in dialogue; and (iii) are well known and respected enough to diffuse ideas from this dialogue to a wide social network. By targeting the involvement of these individuals in a participatory process, it may be possible to attain ‘better’ quality land management strategies, ones which reflect the multiple values and knowledges of stakeholders. This approach is illustrated through a case study of a land management conflict in the UK’s Peak District National Park (PDNP).

THE PEAK DISTRICT NATIONAL PARK

The Peak District is typical of upland regions around the UK and Europe that are faced with imminent changes resulting from demographic effects, policy reforms and environmental problems. It is also one of the world’s most visited National Parks largely due to the area’s natural beauty and abundant opportunities for outdoor recreation. Tourism plays a large role in the region’s local economy, and thus many in the area are keen to maintain the region’s aesthetic value. In addition to tourism, the local economy depends on the Peak Districts’ water provision to close-by large conurbations and the revenue that is received from farming and hunting. The area houses a local population of 38,000 and a relatively high proportion of second homes. All these different ways of using the area cause some level of stress to the environment.

Thus, recent environmental assessments (English Nature 2003) have classified over 35% of the Park area as Sites of Special Scientific Interest, in that it is home to a number of rare and fragile habitat types. Many of these areas have been assigned as being in unfavourable condition due to a combination of overgrazing and 'inappropriate' burning. Such problems are compounded by historic atmospheric pollutant deposition and increased climatic variability that have been blamed for increased erosion and declining water quality. Erosion also threatens the significant store of carbon contained in the peat soils associated with the moorland ecosystems of the Pennines (Worrall *et al.* 2003). A further layer of complexity is added through legal and other institutional changes such as the single farm payment, the water framework directive and the creation of new national legislation such as the revision of the Heather and Grass Burning Code.

For land managers in the Peak District to adapt to this range of socio-economic, environmental and policy pressures, they need to make informed assessments of different future scenarios of burning and grazing regimes. To do this, they need to interact with scientists where information can be exchanged as to the current condition of the Peak District, and the best methods and indicators of maintaining the Peak District for the future. In addition, and perhaps more importantly, these stakeholders need to interact with one another, in order to develop a consensual view of how sensitive upland moor areas are best managed. Towards this end, we are developing an iterative learning process including key stakeholders with the PDNP and a range of natural scientists from various institutes in the UK (Hubacek *et al.* 2005). This paper addresses the first stages of this process.

IDENTIFYING STAKES AND STAKEHOLDERS IN THE PEAKS

People with a stake in the future management of the Peaks were identified through a focus group including members of the MFF management team and the key stakeholders that this team had identified. In this focus group, stakeholder groups and their stakes were identified, and information was elicited about how these groups related to one another, and the most effective way for researchers to gain their support and active involvement in the research. The stakeholder groups that were

identified included the following: water companies, game keepers, farmers, conservation groups and recreation groups. To avoid bias arising from this initial focus group, this information was triangulated through interviews with key members of stakeholder groups that had not been present at the focus group. Initial interviewees from each group were identified as part of this process and (following a snow-ball sampling approach) these people contacted others to see if they were interested in taking part in the research. Interviewees then passed on contact details of interested friends and colleagues to the research team. In this way it was possible to conduct interviews with individuals from each group to ensure that a cross-section of all relevant stakeholders had been included in the research.

A total of 30 semi-structured interviews were conducted in this way. Interviews started by asking respondents to reflect on their perceptions of the social, economic and environmental problems in the upland system and identify goals for future land management. These data gathered from our interviews allowed us to develop scenarios of likely future change and an outline of the drivers of change.

Our interviews were a first step in showing us how stakeholders were viewing issues pertaining to the Peaks, and how these issues might conflict. Due to Defra's ongoing review of the *Heather and Grass and Burning Code 1994*, the frequently used land management practice of heather burning emerged as the most important and contentious topic, with stakeholder groups largely disagreeing on where and when burning should occur. These initial findings also showed us, potentially, that some stakeholder groups might not get along well with others in a participatory setting. Although we were getting a sense for some of these potential conflicts, we wished to gain more precise knowledge about which stakeholders in the Peak District were perceived as potentially problematic in the community, which ones were seen as influential and well-liked and, finally, which ones were perceived by others as having similar and/or different views from their own. Such knowledge would give us a map of how stakeholders were related to one another on different levels, thereby highlighting important and/or problematic actors, and this knowledge would guide the choices we would make in future participatory activities.

To draw these maps of interaction, we conducted a social network analysis. A social network is a set of individuals or groups who are connected to one another through socially meaningful relationships. Examples of such socially meaningful relationships include family, friends or relations based on trust, giving advice, or sharing information. These relationships are then mapped out to see the patterns that emerge among individuals, groups or organizations. In mapping out these patterns, the analyst looks at such issues as the quality of the relationships, the positions of actors within the network, and the overall structure of the relationships (Wasserman and Faust 1994). For our purposes, we wished to see how well-connected was the overall network of stakeholders, and whether certain actors emerged as the ones linking different stakeholder groups together. If the network held cliques or isolated groups, this would highlight for us the need to structure activity in such a way as to break down these pre-formed cliques, and bring isolated groups into the network. Similarly, if we could locate stakeholders who perform bridging roles between sub-groups in our network we would actively try to involve these stakeholders in order to increase the likelihood of bringing together as well as diffusing disparate ideas regarding sustainability.

SOCIAL NETWORK ANALYSIS

To look at the youth structural features of our stakeholder network, we conducted a social network analysis through structured telephone interviews with our same set of respondents as used in our semi-structured interviews. Out of the 30 original respondents, we were able to contact and interview 22 stakeholders. We asked these stakeholders about their frequency of communication with other stakeholders, and to what extent their views overlapped or differed from others.

The data gathered resulted in two networks, which are presented below. We will refer to them as 'frequency of interaction' and 'similarity of views'. To locate the positions of actors in these two networks, we ran betweenness centrality analyses on each of these networks. Betweenness centrality refers to the number of times an actor rests between two others who are not themselves connected. We saw betweenness centrality as a particularly helpful summary measure for locating which actors seemed to connect otherwise disparate members of the

network. Such highly 'between' actors would be ones that bridged across areas of the network, and thus could assist in communicating ideas about sustainability. Graphs of the networks are shown and discussed below.

Each node in the graphs represents one of the stakeholders we interviewed. A tie between two nodes/stakeholders indicates a relation between these two stakeholders. The nodes are arranged according to stakeholder group, and the size of the nodes indicates the relative betweenness scores of the stakeholders in the networks.

Figure 1 shows the frequency of communication network. This graph shows those stakeholders who communicate monthly or more often with one another. The graph also shows that three cliques emerge: water companies and conservationists, game keepers and farmers, and recreation which forms its own clique. In other words, the recreation group is isolated from the rest of the network. In addition, we see two nodes of a noticeable larger size than the others. These two nodes represent two stakeholders with a lot of betweenness centrality, i.e. they bridge across disparate actors in the group. Figure 1 shows us that we need to be sensitive to involving the recreation stakeholder group, as this group lies a bit outside the rest of the network. In a similar fashion, we would like to involve the more

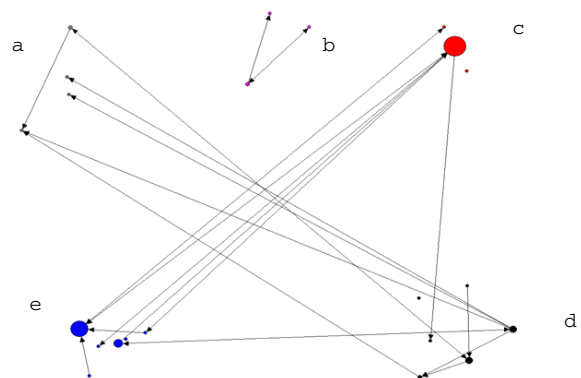


Figure 1 Communication ties between stakeholders who interact on a monthly or more frequent basis. Nodes represent individuals from different stakeholder groups (a, water; b, recreation; c, agriculture; d, conservation; e, grouse). An arrow between two nodes indicates an individual who said they communicated with another individual on a monthly or more frequent basis. Two-way arrows indicate that this perception was reciprocated by the other individual. Larger dots represent individuals who communicate most frequently with others in the network

'between' stakeholders to better ensure the likelihood that ideas about sustainability are brought to the table as well as diffused to the larger network.

Figure 2 shows actors' impressions of others' views overlapping 'a lot' with their own. This graph shows that there are a lot of similarities in views regarding land management. Thus, while we discovered in our interviews with stakeholders that heather burning is a highly controversial topic, these same stakeholders told us that their views on upland management in general were similar to other stakeholders in the community. This gives us

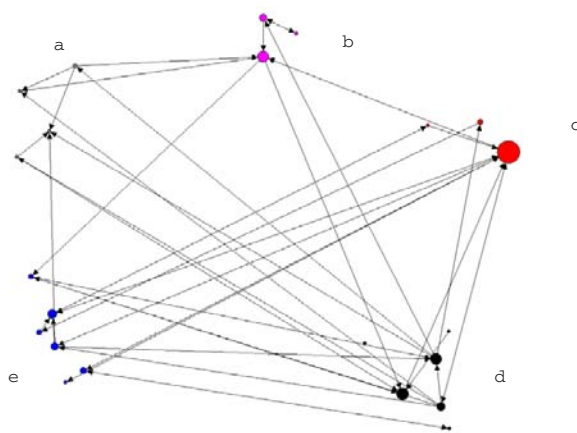


Figure 2 Stakeholders impressions of others' views on upland management overlapping 'a lot' with their own. Nodes have been arranged according to stakeholder group (a, water; b, recreation; c, agriculture; d, conservation; e, grouse)

hope that different stakeholder groups will be able to participate in a serious dialogue with one another over areas of mutual concern.

DISCUSSION: USING SNA FOR OUR NEXT STEPS

What have we learned from this? Certain stakeholder groups and actors are emerging as more connected and involved than others. This information will be especially useful in helping us to improve the facilitation process in subsequent multi-stakeholder focus groups. In designing participatory activities in follow-on activities, we will use the information gathered from the social network analysis to decide which stakeholders will be grouped together in workshops and site visits to encourage ties between the different groups and to help build trust and understanding across the network.

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