Tackling ambiguity in the management of natural resources

Ambiguity arises in a decision-making process when there is more than one way of interpreting a problematic situation. A new study has explored five possible strategies to overcome ambiguity in natural resources management – rational problem solving, persuasive communication, learning through dialogue, negotiation and opposition. A case study of water management in Spain is given to illustrate how these strategies have been used.

Over the years, the importance of ambiguity in natural resource management has increased, mainly because new managing approaches tend to engage multiple actors in decision-making processes in order to develop solutions that can cope well with uncertainty and unknown conditions. Ironically, bringing many actors into decision-making has created a different type of uncertainty: ambiguity. Ambiguity occurs when diverse actors, such as policy makers, environmental groups and the general public, bring their own different, valid, and sometimes conflicting, ideas of how to solve a problem.

The research, conducted as part of the EU funded NeWater project, explored five alternative strategies to deal with ambiguity:

- Rational problem solving using science. Experts provide objective evidence through modelling or research that will support one frame, or view, over the other.
- Persuasive communication – this approach resolves ambiguities by communicating the importance of a frame, using awareness raising campaigns, lobbying and educational activities.
- Dialogical Learning – this strategy encourages actors to interact and create a shared frame on the problem. It can involve techniques such as facilitation by a neutral person, and role playing where actors play the part of each other.
- Negotiation Strategy – this aims to reach an agreement through information exchange. It does not directly address ambiguity as parties maintain their frames, but it involves reaching a solution that considers all frames.
- Oppositional modes of action – this involves the imposition of a frame and opposition to it. It is often encountered if there is history of confrontation and tends to involve protests, vetoes and non-compliance with regulations.

The study illustrated these strategies using a case study of water resource management in the Upper Guadiana Basin (UGB) in the Spain Central Plateau. Here there are different and conflicting views on water availability and sustainable use of water. Policy makers, farmers, environmentalists and the public all frame the problems differently. Environmentalists consider the problem to be one of excessive water consumption. Policy makers see the problem as one of control over water extraction and have implemented quotas. Farmers consider the problem to be one of fairness, as they believe they are entitled to water due to agriculture’s contribution to the economy.

In general the strategy used in UGB has changed from oppositional towards negotiation and, during this transition, a persuasive communication approach has also been used, especially by environmentalist groups, such as WWF, who have engaged in awareness campaigns and educational programmes. When authorities implemented the water control measures they used a rational problem solving approach by supporting their actions with scientific evidence and monitoring data. Some farmer groups still engage in an oppositional approach by ignoring quotas.

Finally dialogical learning has been applied by the NeWater project which has used participatory tools to develop a joint frame on the problem. After a decade, a shared vision is beginning to emerge.

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