From Arena To Interaction: Blind Spot in Actor-Oriented Sociology[1]

Niels Röling

Communication and Innovation Studies, Wageningen University

Abstract

Actor-oriented sociology has provided a much-needed critical perspective. But through its emphasis on actors' strategic manoeuvres and struggles, it has contributed to strategic narratives and ignored opportunities for overcoming social dilemmas. Such opportunities emerge in interactive approaches. The paper explores these interactive approaches and expands on the theory of agency so as to allow actor-oriented sociology to take on board not only struggle but also interactive emergence. The Wageningen scene has changed. Many technical chair groups have embraced interactive ways of getting things done as an essential ingredient in the professionalism of their graduates. Here lies a very good opportunity for setting on a firmer footing the social contract of social sciences. The paper tries to expand actor-oriented sociological theory towards this purpose and describes the typical social theatre (i.e., not necessarily a battlefield) that is relevant for the pursuit of concerted action among interdependent stakeholders with respect to some contested resource.

Introduction

Actor-oriented sociology has provided a breath of fresh air. In the field of development, wishful thinking tends to predominate as the next wave of promising narrative hits donors, NGOs, consultants, universities and development victims. When funds back such narratives, it becomes unhealthy not to pay them lip service. And so the waves accumulate energy until they crash on the beaches of overwhelming failure.

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[1] This paper draws on N. Röling and J. Woodhill (2001). From Paradigm to Practice: Foundations, Principles and Elements for Dialogue on Water, Food and Environment. Background Document for National and Basin Dialogue Design Workshop held in Bonn, December 1, 2001.

Actor sociologists masterfully surf these waves. In the mad development arena, the critical analysis provided by actor sociology has provided a heaven for those who returned from the battlefield bloodied, frustrated and feeling cheated. The analysis provided by actor sociology with its focus on power, conflict, strategizing, enlistment, and other human cleverness provides a new and unfettered base from which to bring the hype to ground. With a minimum of preconceived ideas and assumptions, actor sociology forces the observer to look at what actually happens at the interfaces at which life worlds meet.

Actor sociology has been particularly valuable in the Netherlands. The Dutch are, according to one observant Malawian, prone to persisting in doing the things they believe to be the right things to do, even if they know they don't work. We have practised that behaviour over hundreds of years in our particular branch of Christianity and we have adroitly adapted it to development work. Actor-oriented sociology has made a huge contribution by exposing this tendency.

There is a 'but', however. Actor-oriented sociology focuses on the analysis of strategic behaviour. It stresses the reasons why people do *not* come together. It demythologises intervention, debunks social engineering, and trains students in strategic thinking and in psyching out the counter-forces. It thrives on deflating naivete and in breeding cynicism and a critical stance. It graduates espouse strategic narratives[1]. In doing all this, it leaves a major gap. It creates disinterest in such phenomena (and I use the word advisedly) as participatory development, collective or concerted action, and in the perhaps rare sustainable futures that emerge from interaction. In that sense, actor sociology has been a bit like economics. Like economic man, that proverbial human being hard wired to maximise his/her utility, the human actor in sociology is a strategist who is interested in promoting his/her projects. Other phenomena are beyond the purview.

There are two reasons why this is unsatisfactory. In the first place, a great deal of human activity can be explained by convergence towards collective purposes and action. So the perspective of actor sociology is selective and preconceived in that respect. Secondly, humans have become a major force of nature[2]. Our main predicament is of our own doing. The anthropogenic eco-challenge cannot be dealt

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[1] Röling, N. and M. Maarleveld (2000). Facing Strategic Narratives
[2] Lubchenco, J. (1998).

with by the 'aggregation of individual preferences and individual votes'[3]. Or as Jackson[4] puts it, 'you and your enemies are part of the same system, therefore solutions must be found in managing relationships'. Where sustainable futures at all levels must be forged in interaction, actor sociology cannot afford to ignore research into the remote possibility that a sustainable future is indeed attainable. We are entering an era in which social science has an important contribution to make. The task is not so much to prove that humans are strategic and selfish promoters of their own interests, but rather to explore conditions and opportunities for collective action, and to help design social processes that could give it a chance.

The present paper provides a framework for actor sociological analysis of opportunities for the management of interactive processes that enhance the emergence of sustainable futures. It starts off with a typical example of the predicaments humanity is facing at the start of the 21st century. These predicaments increasingly require a social science perspective.

An example: Water Dilemmas

People have taken on the management of the earth, but they have not made a very good job of it. Fresh water is rapidly emerging as the case in point. 'Humans currently appropriate more than half of accessible fresh water run-off, and by 2025, demand is projected to increase to more than 70% of run-off. A substantial amount, 70%, of the water currently withdrawn from all freshwater resources is used for agriculture. By shifting water from freshwater systems to agro-ecosystems, crop production increases, but at significant cost to downstream ecosystems and downstream users. Some of the water consumed does return to rivers and, if it does, typically carries with it pollution in the form of agricultural nutrients or chemicals, or human or industrial waste. As much as 60% of water withdrawn from rivers is lost to downstream uses' [5].

Growing water scarcity threatens global food and environmental security and 2.7 billion people can face water shortages by 2025. Agricultural scientists say that farm water use, especially irrigation, must be increased by 15 to 20% in the coming

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[3] Goldblatt, *****

[4] Jackson, M. (2000). P.149

[5] World Resources Institute (2000). World Resources 2000-2001. People and Ecosystems: The Fraying Web of Life. Washington: World Resources Institute, page 50.

25 years to maintain food security and reduce hunger and rural poverty for a growing world population. Meanwhile, environmental scientists say that water use will need to be reduced by at least 10% during the same period to protect rivers, lakes, and wetlands on which millions of people depend for their livelihoods, and to satisfy the growing demands of cities and industry. Many of these ecosystems have already been eliminated or damaged over the last decades. The agriculturists and the environmental scientists are speaking about the same water[6]. These issues can be summarised as:

- Scarcity of fresh water in large parts of the world, there simply is not enough for everybody. This scarcity is rapidly becoming more pronounced as a result of climate change and degradation of ecosystems that make the hydrological cycle work for us;
- Even if there is enough for all, lack of access to safe drinking water for very significant numbers of people; increased health risks resulting from hydrological changes (malaria, schistosomiasis);
- Increasing conflicts about the uses of water, between cities and agriculture, between nations, between rich and poor farmers, between upstream and downstream users, and between irrigation and catchment integrity.

Characteristics of water dilemmas

Water dilemmas are not easily amenable to technical or economic solutions otherwise we would not have to bother about them. In fact, they have key characteristics that make them hard to handle.

In the first place, such dilemmas are complex. Even if they would respond to causal manipulation, so many factors are involved that causal models and clear leverage points are difficult to identify. What's more, efforts to simplify the complexity and use decision rules often has disastrous consequences, as Dörner has shown in his 'analysis of failure'[7]. What is more, different scales in time and

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[6] Dialogue of Water, Food and Environment (2001). Press Release in Washington, Stockholm, London and Toronto, August 13

[7] Dörner, Dietrich (1996). The Logic of Failure. Recognising and avoiding error in complex situations. Reading (Mass.): Addison Westley: a Meloyd Lawrence Book. (Translated by Rita and Robert Kimber from the German: Logik des Misslingens. Rowolt Verlag GMBH 1989). ISBN 0 201 479486

space are involved, and the dilemmas do not easily lend themselves to optimisation or other forms of modelling.

Water dilemmas are marked by uncertainty. Climate change, the behaviour of complex ecosystems, the lack of measurability of underground water flows, the unpredictability of major climatic fluxes such as El Nino create a great deal of uncertainty. A typical example is the recent shift in thinking about water quantity management in the delta of the Rhine[8].

Box 1. Increasing uncertainty with respect to water quantity management in the Rhine Delta.

Before the German tribes started to cut the forests in its catchment, the water levels in the Rhine used to be so stable that a sizeable population could settle on its levees in the Rhine delta. However, in the late Middle Ages, water levels began to destabilise with a major danger of floods. These necessitated the building of dykes to protect the lands and property of the growing population that had settled in the fertile delta. Until recently, there was a widespread understanding that water quantity management could be left to expert technical agencies, in charge of dykes, sluices, and other measures and structures which *controlled* the river. Now the situation has changed completely. Climate change with its unpredictable and freak weather events, the further canalisation of the Rhine and its tributaries, the increasing acceleration of run-off as a result of hard infrastructure, etc., has led to the realisation that peak water flows are no longer predictable and controllable. Instead, the new reality is that *space for water* must be created. In the Netherlands, water boards are now searching for areas that can be inundated in times of peak flood. In the densely populated delta, any allocation of land to possible inundation is, of course, fiercely contested.

Uncertainty with respect to issues with high stakes demands different approaches than the ones we are used to[9]. Such uncertainty is not amenable to puzzle solving science or to consultancy approaches, but requires 'post-normal' science': situation

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[8] Van Slobbe, E. (expected 2001). Nieuwe Uitgangspunten voor Waterquantiteitsbeheer. (Prelim. Title, manuscript is in Dutch). Wageningen: University, Published Doctoral Dissertation.

[9] Funtowicz, S.O. and J.R. Ravetz (1990). Global environmental issues and the emergence of Second Order Science. Luxembourg: Commission for the European Community, DG Telecommunications, Information Industries and Innovation. CD-NA 12803 EN C, Report EUR 12803 EN
Funtowicz, S.O. and J.R. Ravetz (1993). Science for the post-normal age. *Futures* Vol. 25, (7): 739-755.

improvements arise out of interaction among scientists, problem owners and self-appointed activists. 'Facts' are extended to include people's reasons.

Water dilemmas are value-laden. They are not neutral in a technical sense, nor can one assume that rational choice or market forces will solve them. In fact, water dilemmas are usually marked by the presence of multiple stakeholders representing different interests. These interests are based on different worldviews, life goals, incentives, and livelihoods. The improvement of water dilemmas requires negotiation and agreement among these different stakeholders in order for them to reconcile their differences, reach compromise, and engage in constructive concerted action.

It is clear that such stakeholder differences often feed major political conflicts. Nation states can claim the right to exploit water resources irrespective of the consequences for countries downstream, as Turkey has done with respect to Syria by building major irrigation schemes in the South East of the country. But political conflicts can also arise between upstream farmers and downstream irrigators[10], between rich landowners who divert water for irrigation from streams on which thousands of small holders depend, between urban and agricultural interests, etc.

As we have seen, water dilemmas often have many different technical and social dimensions. They cannot simply be approached from one angle or point of view. Different people and different interest groups differently 'construct' the dilemma, leading to totally different suggestions about the way forward.

Water dilemmas also typically feature separations in space and/or time. Human activities in the top of the catchment can have disastrous but unnoticed consequences downstream, for example, when pesticides wash down rivers and destroy oyster beds in estuaries. Similarly such activities can have consequences which only emerge years later. An example is the heavy use of fertilisers on plateau's which can lead to enriched seepage that destroys rare vegetations in brook meadows years later. Such consequences are often irreversible or very difficult and costly to rectify[11].

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[10] E.g., Bolding, A. Wielding water in unwilling works: Negotiated management of water scarcity in Nyanayadzi irrigation scheme, winter 1995, chapter 4 in E. Manzungu and P. van der Zaag (1996). The Practice of Small-holder Irrigation. Case Studies from Zimbabwe. Harare: University of Zimbabwe Publications. A published doctoral dissertation by the same author about the conflicts in the Nyanayadzi catchment is expected in 2002.

[11] Baaijens, G.J., N. Röling and P. Veen (2001). Drentsche Aa, Externe Audit. Driebergen:

From an economic point of view, water dilemmas are also hard to deal with. Costs are largely externalised and hard to ascribe to specific actions and/or actors. Public and private responsibilities are hard to assign. The territorial units in which water dilemmas manifest themselves, i.e., lakes, wetlands, estuaries, river catchments, etc., often belong to different administrative units, such as communities and municipalities, provinces, water boards, etc., each with their own rules and regulations, and territorial instincts. Hence institutional aspects, such as jurisdictions, rules and regulations, standards, criteria, and policy instruments, play crucial roles in determining the outcomes of stakeholder interaction. But the same can be said of issues of power, such as the reluctance of provinces and municipalities to relinquish authority to regional agencies, which often prevent decision making at the basin level from having statutory clout.

Very often, agreements at the basin level are hampered by conditions that have been created at the policy level. For example, in the Dutch National Landscape 'De Drentsche Aa', a forum for deliberation among the major stakeholders in that river system, reaching agreement is severely curtailed by conditions set at the policy level. Farmers are provided with subsidies of about Euro 500 per hectare, which motivate them to farm as intensively as possible. Meanwhile the Government pays the Forest Management Service on the basis of its 'output' of hectares of rare vegetation. In other words, farmers are paid to fertilise and drain the land, which the Forestry Service is paid to keep it nutrient-free and wet. The ensuing 'Dialogue' is clearly affected by its policy context. One cannot approach interactive solutions without taking into consideration the context created by policies and institutions[12].

In all, water dilemmas cannot be solved only on the basis of science and technology. Nor do improvements arise out of the aggregation of individual preferences. That is, the market often fails when it comes to water dilemmas. Water dilemmas are anthropogenic. They reflect the collective impact of individual actions. Hence they must be solved on the basis of reflective *back casting* from the anthropogenic predicament to the behaviours that gave rise to it. In other words, people collectively need to learn to deal with themselves. Such learning must be based on a widespread understanding of human behaviour, and especially of the conditions for conflict resolution, negotiated agreement, social learning, etc. This I see as the main challenge for the social sciences. That challenge is to provide a

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Staatsbosbeheer (report on an external audit of the Drentsche Aa nature conservation area for the Dutch Forest Management Service.

[12] Baaijens et al, op. cit.

credible and understandable narrative about the feasibility of sustainable outcomes of interaction.

Focus on Outcomes from Interaction

Table 1 illustrates three ways of being effective and some defining attributes of each. Most of us are thoroughly familiar with instrumental and economic thinking, but not with 'interactive thinking'.

Table 1: Three ways of getting things done

	Instrumental	**Economic**	**Interactive**
Predicament	Lack of control over causal factors	Competition, scarcity	Anthropogenic destruction of our habitat, lack of control over ourselves
Dynamics	Causation. Self-organisation	Rational choice, struggle for survival, market forces	Interdependence, agency, learning, reasons, reciprocity, trust
Objective	Control of nature for human purposes	Win, gain advantage, optimise utility	Negotiated agreement, concerted action
Knowledge Base	Natural Science	Economics	Social Science, cognitive science
Effect based on	Technology	Strategy	Conflict resolution, agreement, learning
Policy focus	Engineering, hard systems design	Fiscal policy, market stimulation	Interactive policy making, social process design, dialogues, process facilitation

Water dilemmas, as an example of the typical human predicament in the 21st century, require all three ways of being effective. But I am interested especially in type 3. Although the explicit and deliberate embrace of technology (type 1) and economy (type 2) is a recent historical phenomenon in industrial societies, by now most of their inhabitants can engage in informed discourse about them. My argument is that this myopic focus on types 1 and 2 has led to second-generation problems that increasingly require type 3. We are facing a new context: the greatest threat to our survival is our own behaviour. Hence the third way of getting things done is becoming increasingly important. It is likely to incorporate the other two, much as economic thinking had earlier incorporated instrumental thinking. We need to develop shared ability for discourse and reflection with respect to type 3. I believe that the best entry point for the development of such ability is a closer examination of the concept of agency, which plays a crucial role in actor-oriented sociology.

A new look at agency

Paraphrasing Merton, we can say that people's reasons might be intangible and 'soft', but 'they are very real in their consequences'. Actor-oriented sociology focuses on people's reasons, and that is a pursuit very different from the scientific analysis of causes, and also very different from assuming or ascribing reasons, as does economics when it postulates that people make rational choices to optimise utility. Actor-oriented sociology does not assume or attribute reasons, it looks at how reasons emerge and determine human action. Such a focus is important in an epoch in which human survival depends, at all levels of aggregation, on people's ability to understand and manage themselves.

People's reasons are not limited to formal logic or knowledge. In fact, the very stuff of reasons comprises emotions and values, perceptions, beliefs about the world, narratives, and decision making to act[13]. In other words, actor-oriented sociology is about how people make sense of the world, how they socially construct reality, and how they exert agency to realise their projects. Figure 1 pulls together these elements of agency and their relationships. We shall speak of a 'cognitive agent' in

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[13] Capra, F. (1996). The Web of Life. A New Synthesis of Mind and Matter. London: Harper Collins Publishers (Flamingo); Maturana, H.R. and F.J. Varela (1987, and revised edition 1992). The Tree of Knowledge, the biological roots of human understanding. Boston (Mass.): Shambala Publications; Rosenberg, A. (1988, 1995). Philosophy of Social Science. Boulder: Westview Press.

its domain of existence or context, to do justice to the roots of these ideas in biology and praxis[14].

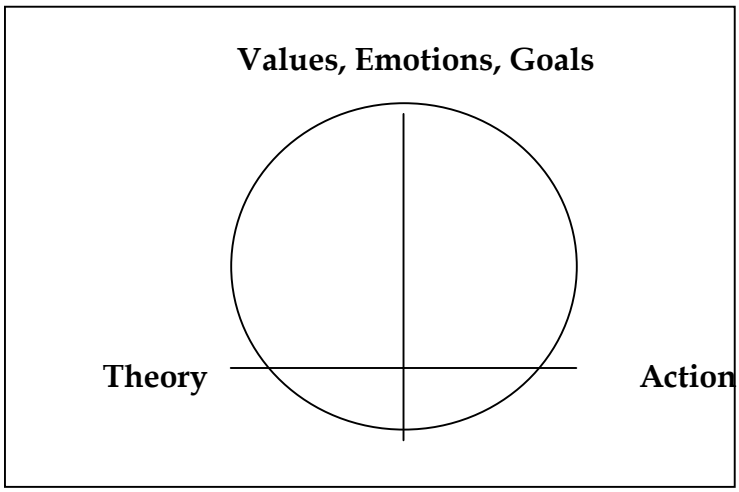

Figure 1: The elements of agency: cognitive agent in context [15].

People's reasons, and their 'very real' consequences as a result of human agency, arise out of the effort to, at the same time, create *coherence* among values, theories, perceptions and actions, and maintain *correspondence*, or structural coupling, with the context[16]. I believe that these are two crucial concepts for our pursuit. Agency can only be based on coherence among its ingredients, as depicted in Figure 1. But

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[14] The picture is based on a combination of various influences, including the Santiago School of Biology developed by H.Maturana and F.Varela (1992), op. cit. And described by F. Capra (1986), op. cit. But an important influence has also been R. Bawden (2000), ********, who has developed a theory of praxis based on the Kolb's (1984) theory of learning (see next footnote).

[15] Adapted from Bawden (2000), op. cit., Maturana and Varela, op. cit., and Kolb, D. (1984). Experiential Learning: Experience as a source of learning and development. New Jersey: Prentice Hall.

[16] Gigerenzer, G. and P.M. Todd (1999). Fast and Frugal Heuristics: The Adaptive Toolbox. Chapter 1 in: Gigerenzer, G., P. M. Todd, and the ABC Research Group. Simple Heuristics that Make us Smart. New York and Oxford: Oxford University Press, pp. 3-34.

at the same time, that agency is bound to seek correspondence with the context as a condition for effect. Hence coherence and correspondence are the drivers of agency. The dilemmas between coherence and correspondence are the very stuff of social change and innovation. A typical example is Thomas Kuhn's famous theory on scientific revolutions[17].

A dominant paradigm or 'normal science' is a coherent body of knowledge. It fends off evidence that is inconsistent with it and gradually loses correspondence with the context. After some time, 'normal science' cannot resist this evidence any longer, the coherent body of knowledge collapses, and a new paradigm emerges that better corresponds with the context.

People are 'doomed' to socially construct coherent 'realties'. There simply is no other way of knowing. But they are likely to get it wrong, and they can only survive to the extent that they are able to correct themselves so as to create correspondence with the context. Anything that stands in the way of such resilience, be it elite's, institutions, escapist pathologies, inability to learn, impaired or distorted perceptions of contextual change, or the inflexibility of investment, is bound to have grave consequences for survival. Box 2 provides my favourite case in point.

Box 2. Norsemen on Greenland[18]

In the Early Middle Ages, the climate was relatively warm. Norsemen had settled on what was then appropriately called Greenland and developed farming communities based on livestock production. Around 1220, they sent a polar bear to the King of Norway as a present. In return, they received a bishop. He wasted no time and began building churches; religious fervour became one of the hallmarks of the Nordic communities. In the fourteenth century, the climate became cooler. Slowly the conditions turned against the Norse communities and their way of life. Eventually they had to give up and return to Norway. All that now remains of their efforts are the ruins of their churches. Meanwhile, the Inuit who lived on Greenland at the same time effectively adapted their life style to the change in climate and still make their living on the island.

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[17] Kuhn, T.S. (1970). The Structure of Scientific Revolutions. 2nd Ed. Chicago: University of Chicago Press.

[18] Pain, S. (1993). 'Rigid' cultures caught out by climate change. *New Scientist*, March 5, 1993.

This history has intrigued students of the collapse of prehistoric societies. The conclusion is that it is not so much the change in climate that caused the collapse, but the entrenched way of dealing with the environment. Elite groups (bishops in this case) play an important role in this lack of resilience. Elite's can afford to maintain the old lifestyle until it is too late.

So far, we have looked at the cognitive agent as an individual. But actor-oriented sociology looks at arenas, battlefields, interfaces or other theatres where *multiple* agents or actors interact. Multiple actors in situations that are of interest to me, such as the water dilemmas described in section 2, are *interdependent* actors. That means that experiencing desirable outcomes by one actor is dependent upon the activities of other actors.

Science looks at natural resources from the point of view of using them for assumed human ends. Economics looks at individuals' behaviour in the face of relative scarcity. The market, i.e., the 'theatre', or battlefield of actor-sociology, is an emergent property of the assumed selfish, rational choices of individuals. In actor-sociology, it is the theatre itself that is the focus of interest.

One can watch that theatre from the wings, but one can also actively engage with it through action research, through using participatory approaches, or by embarking on a co-learning trajectory in which sociologist and actors reflectively co-learn to deal with the situation.

I believe that the one feature that makes theatres interesting to study is interdependence among the actors in it. Without that, actors become like Australian property owners, each in splendid isolation on his couple of square kilometres of paddock. Actor-oriented sociology is interested in struggle, in battle, in strategy to enlist others, in anticipation of others' moves. This all assumes interdependence.

But a focus on interdependence also brings into purview reciprocity and trust, negotiated agreement, conflict management, social learning, overcoming social dilemmas and concerted action. For me these are key concepts in face of the task we are facing, i.e., the task to develop a narrative about our own behaviour that can be widely shared, and that gradually can (and must) replace natural science and economics as the prevalent bodies of knowledge for designing the future. The interesting question is the choice people make between

1. Optimising their own projects, struggling and fighting to exert individual agency for short-term gain, or
2. Making reciprocal agreements and abiding by them, and engaging in concerted action for long-term optimality.

Interdependent actors can have it either way. The interesting question is how the cookie crumbles. Actor sociologists have, perhaps by temperament or as a result of the Latin American fascination with psyching out human designs, focused on (1). Perhaps as a result of my exposure to Nigerian villages that managed to improve life on the basis of collective effort, I have tended to be interested in (2). Actor-oriented sociologists have often taken me to task for that choice.

I now think it is not a question of a choice. The cookie can crumble in both directions. What is of interest is to study the conditions that determine how it crumbles. What is of particular interest is how we can ensure that it crumbles in the direction of deliberative democracy on platforms for negotiating land use. That, it seems, is the only way to limit the greed that we have enshrined as the benevolent force that leads to economic growth, consumer spending and other unsustainable tendencies on which happiness and the health of the global market is now seen to depend.

Overcoming social dilemmas

Hardin[19] used rational choice theory to argue that herders who use a common pasture have little option but to collectively destroy their shared resource. Herders will increase their herds while the total quantity of grass stays the same for very good reasons. If their cows do not eat the grass, those of others will. The impact of each additional cow on the shared resource is minimal. But in the end, the herders will collectively overgraze the pasture and all will suffer. Hardin called this the 'tragedy of the commons', a metaphor that had great impact on thinking about natural resource management, and that epitomises interdependence.

It led to the development of social dilemma theory[20]. A social dilemma is a situation in which it is rational for all individuals to make selfish choices, while all would be better off in the end if they made co-operative choices. The two types of

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[19] Hardin, G. (1968). The tragedy of the commons. *Science* 162: 1243-1248.

[20] Ostrom, E. (1990, 1991, 1992). Governing the Commons. The Evolution of Institutions for Collective Action. New York: Cambridge University Press

social dilemmas most discussed are commons dilemmas and public goods dilemmas. The former can be solved if all take less from the common good; the latter if all contribute more to the public good. Public goods dilemmas are characterised by free riders who use the public good but do not contribute to its upkeep.

Water resources typically can be the subject of either type of dilemma. When vegetable growers around Beijing relentlessly pump dry the common aquifer, a fact well known to them because the water level is dropping every year, we are clearly dealing with a commons dilemma. But when farmers in the Philippines do not show up to help clean the common irrigation channel, we are dealing with a public goods dilemma.

Hardin's metaphor also led to explicit research of what happened in the millions of villages where resources were shared. In some, as on Turkey's Anatolian plateau, Hardin's prediction seemed all too accurate. Bare rock now marks areas where lush forests grew only fifty years ago and vast grasslands have been reduced to gravel deserts. One set of bare rocks now marks the place where Hannibal once hid his elephants in the forest from his enemies. But researchers also have found areas where farmers had sustainably managed common resources for centuries. This has led to very fruitful and interesting research on common property resource management with which the name of Eleanor Ostrom[21] is indelibly connected.

It turns out that Hardin was not really talking about commons at all, but about open access resources, i.e., resources from the use of which no one can be excluded. In contrast to such open access resources, many instances exist of common resources that have been managed sustainably for centuries under the following agreements:

- Access to the resource is limited to a defined set of users;
- Those with access communicate (a platform for dialogue exists);
- Clear rules for access and use;
- A way of monitoring adherence to these rules;
- Payments for monitoring and use;
- Sanctions for violating the rules.

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[21] Op. Cit.

These rules form the institution of common property resource management. The existence of such rules generates trust that others will also make the required sacrifice for sustainable management of the resource. Experience that such agreed rules work over time is said to increase social capital, i.e., the likelihood of other successful collective action[22].

Box 3: Community Forests in Nepal[23]

Until the 1950s, villages managed the forests in Nepal. The villagers used them for grazing their cattle, collecting firewood and timber, as well as various other products such as honey, herbs, etc. But the condition of forests gradually deteriorated as the population increased. The government then decided to nationalise all the forests and make them state property. As soon as this became known, the villagers went on a massive tree cutting binge to ensure enough wood for the time they would not be allowed access any more. Large piles of wood lay rotting in front of the houses of many villages. It soon turned out that it would not have been necessary to cut the wood. The government was unable to monitor the forests. Hence they became *de facto* open access resources. Everyone took as much as possible; the proverbial misnamed 'tragedy of the commons' had set in. In mountainous Nepal this soon had very undesirable consequences in terms of run-off, erosion, landslides, siltation, etc.

The government realised that nationalisation had been an error. The new policy foresees in community forests. Rural communities can get back their forests under certain conditions. They have to organise and set up Forest Users' Groups (FUG). These must comprise all the people who have rights of access to the community forest. The FUG elects a committee for managing the forest. In the FUG agreements have to be made about:

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[22] Uphoff, N. (2000). Understanding Social Capital; Learning From Aanalysis and Experience of Participation. Ithaca (N.Y.): Cornell University: CIIFAD, unpublished paper presented at Wageningen University, September 13, 2000; Uphoff, N. and C.M. Wijayaratna (1999). Demonstrated Benefits from Social Capital: The Productivity of Farmer Organisations in Gal Oya, Sri Lanka. Ithaca (N.Y.): Cornell University: CIIFAD. Unpublished paper.

[23] Potters, J. (1998). Understanding the Functioning of Collective Forest Management. A case study on perception and behaviour in a Community Forest User Group in Salyan District, Western Nepal. Wageningen: University, Communication and Innovation Studies, MSc Thesis.

- The amount of wood and other products each family can take. In a typical village, each family, regardless of its size, is entitled to one tree per year.
- The person who will monitor the use of the forest, the payment that person will receive and the amount each family is to contribute for that service.
- The fines that families need to pay when they violate these rules.

Studies of these village forests[24] show that some of them fail because families are unwilling or unable to make the necessary sacrifices or contribute to the salary of the warden (a public good). However, others succeed. In such communities, people trust the enforcement of the rules. They have made sacrifices, such as reducing the number of cows they graze in the forest because others do so too. It turns out that some powerful people, such as the village head, sometimes violate the rules of access and take more than what they are entitled to. However, the agreements are quite robust and are adhered to, nevertheless. One small problem is that men are not allowed to touch women. Hence the wardens, who are usually men, are powerless to capture or arrest women who breach the rules. Apparently this leads to a great deal of fun and games and does not seriously jeopardise the common property management.

For us, the lesson from common property resource management is a hopeful one: all over the world, local communities have managed to stick to agreements to manage natural resources in a sustainable manner. Sometimes, these agreements have lasted for centuries. Such agreements are able to override the selfish choices that actor-oriented sociologists assume as the dynamic core of agency. But achieving such agreements requires much attention to institution building (in the sense of systems of rules[25]). What is important is to build the institutions that will make it work.

Summary of key concepts

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[24] Basnyat, B. (1995). Nepal's Agriculture, Sustainability and Intervention. Looking for new directions. Wageningen: Wageningen: University. Published doctoral dissertation. 285 pp.

[25] North, D.C. (1990). Institutions, Institutional Change and Economic Performance. New York: Cambridge University Press

Before I go on with proposing dialogues for resource use negotiation as theatres of paramount interest for actor-oriented sociology, I summarise the key points made so far.

We are squarely in the interactive paradigm, i.e., we operate in quadrant III of the Miller-Bawden Quadrants (Figure 2). A paradigm comprises epistemology, ontology, axiology and methodology[26]. Figure 2 uses an epistemological horizontal and an ontological vertical axis to illustrate different approaches for tackling natural resource management problems. The example is based on the management of the Spruce Budworm crisis in New Brunswick, Canada[27].

The quadrants characterise the paradigms favoured by different scientists involved in the battle against the Spruce Budworm. Those in Quadrant 1 approached the problem from a reductionist and positivist perspective. They recommended spraying. Positions in Quadrant 2 had a positivist but also holistic, i.e., a hard systems, perspective. They focused on natural controls and the management of the eco-system as a whole. A few of the scientists had developed a Quadrant 3 perspective (i.e., holistic and constructivist, soft system thinking). They focused on the problem as the outcome of human activity and on critical learning (with some reason: the Spruce Budworm became a pest as a result of the human decision to plant enormous tracks of land with one species). No one seemed to have embraced Quadrant 4, Miller mentions 'praying' as the appropriate response in this quadrant[28].

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[26] Guba, E.G. and Y.S. Lincoln (1994). Fourth Generation Evaluation. London: Sage Publications.

[27] Miller, A. (1983). The Influence of Personal Biases on Environmental Problem-Solving. *Journal of Environmental Management*, 17: 133-142. Miller, A. (1985). Technological Thinking: Its Impact on Environmental Management. *Environmental Management* 9 (3): 179-190

Bawden, R. (2000). The Importance of Praxis in Changing Forestry Practice. Invited Keynote Address for 'Changing Learning and education in Forestry: A Workshop in Educational Reform', held at Sa Pa, Vietnam, April 16 – 19, 2000.

[28] The intriguing quadrant 4 readily leads to speculation. In his 'Gateway to the Global Garden', N. Röling (2000) suggests that spirituality might appropriately be placed here (see www.uoguelph.ca/cip).

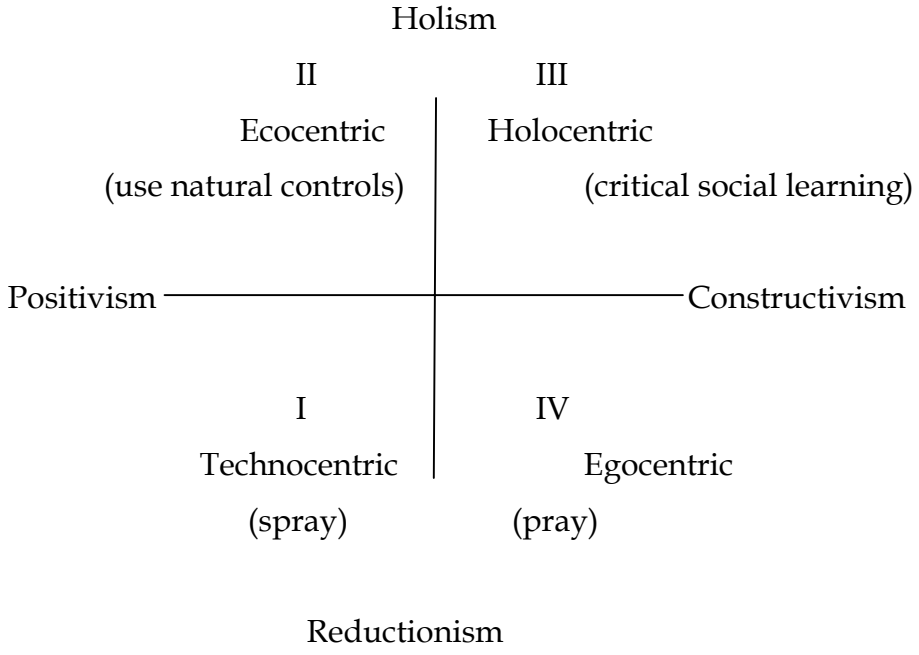

Figure 2: Th Miller-Bawden Quadrants

Quadrants 1-3 seem equally relevant for dealing with a natural resource management problem. Studies of effective social change[29] show that all three quadrants were involved, i.e., successful change required fundamental and applied research in Quadrant 1, but also designing hard systems that work (Quadrant 2) and soft systems that people want, know and can do (Quadrant 3). This paper focuses especially on the neglected Quadrant 3 without negating the relevance and importance of the others. It assumes that increasing interdependence with respect to natural resources such as water will increasingly mean that universities, governments, research organisations, and others engaged in resource management will have to move to Quadrant 3 without forgetting Quadrants 1 and 2. The situation simply is this: people in Quadrants 1 and 2 do not understand Quadrant 3. It is increasingly impossible to be a professional natural resource manager or researcher without being able to operate in Quadrant 3.

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[29] Tekelenburg, A. (2001). Cactus Pear and Cochineal in Cochabamba. The Development of a Cross-Epistemological Management Toolkit for Interactive Design of Farm Innovation. Wageningen: University. Published Doctoral Dissertation.

Quadrant 3 is not concerned with causes or ascribed reasons, but with theatres of multiple interdependent actors. Such actors exert agency, i.e., they engage in knowledge-based action. Agency is based on coherent configurations of values and emotions, perceptions, reality worlds (theory), and strategies for action. Coherence results from a necessary convergence of these elements. But coherence does not necessarily mean correspondence, i.e., effective action in the context.

Theatres with interdependent actors have two options to realise correspondence: (1) slugging it out in a battlefield to realise their own projects, or (2) co-operating to reach negotiated agreement and concerted action with respect to the contested resource. The choice of option is highly dependent on the nature of institutions. In both options, the tendencies towards coherence and correspondence drive the process. But in the second option, shared purposes, shared narratives, shared indicators (e.g., standards) and monitoring systems, and concerted action are subject to forces of coherence through social pressure and a myriad of explicit or tacit social mechanisms. Likewise, correspondence now applies to the effectiveness and justice of concerted action. In other words, in both options, coherence and correspondence express themselves in the use of power and social pressure, imitation, shared learning, innovation and so forth. But in the latter, these drivers work at a collective level. This is a rich scene for sociological research.

I firmly believe that the social contact of social science is based on its ability to help communities at all levels of aggregation to reflexively deal with anthropogenic predicaments. And that means enhancing the chance that theatres opt for negotiated agreement and concerted action. This implies an interested in collective or distributed agency. *Collective* agency emphasises *shared* attributes, i.e., shared myths or theories, shared values, and collective action, e.g., households all engage in recycling paper, or accept that smoking is only to be done outside. *Distributed* agency emphasises different but complementary contributions that allow concerted action, e.g., the navigation of a battleship[30]. Different cognitive agents each do 'their own thing', but, together, they allow purposeful action. *Multiple* agency emphasises the existence, in one situation, of totally different agents with multiple perspectives. They could maintain mutual isolation. But when they become interdependent with respect to the use of resources, such as water, they

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[30] Hutchins, E. (1995, fourth printing 2000). Cognition in the Wild. Cambridge (Mass.): The MIT Press. Hutchins' book provides a fascinating anthropological study of distributed cognition, in the sense that the navigation of the huge ship involves the more or less autonomous activities of different people each doing different things, but together forming a synergistic whole.

engage in conflict, work at cross-purposes, or take disjoint action. However, multiple perspectives can grow into a joint rich picture, enrol in dialogue, and negotiate collective action. In this way, *multiple agency can grow into collective or distributed agency*. It is in this process of convergence of multiple to collective or distributive agency that we must, to my opinion, be interested. This leads to the following focus of actor-oriented sociology:

1. The design of theatres suited to concerted action for managing resource dilemmas. I shall call them 'dialogues';
2. The facilitation of convergence processes in those theatres;
3. The creation of conducive policies and supportive institutional frameworks for concerted action in such theatres.

The rest of the paper deals in greater detail with this agenda. It is based on experience gained in a number of consultancies and assignments in which I have been engaged in recent months[31].

Designing dialogues for managing resource dilemmas

Dialogues are increasingly relevant in forestry, crop protection, irrigation, soil and water conservation, soil fertility management, watershed (basin) management, the protection of rare breeds, nature conservation, fisheries development and management, pasture management, landscape management, etc., i.e., the mandates of Wageningen chair groups and research institutes. In that respect, the time seems ripe for Wageningen social scientists to build interactive approaches into the shared Wageningen approach to natural resource management and land use.

One can define dialogues as *contrived situations in which a set of more or less interdependent stakeholders in some resource are identified, and invited to meet and interact in a forum for conflict resolution, negotiation, social learning and collective decision making towards concerted action.* Dialogues typically concern such domains as values and paradigms, scenarios, long-term objectives, issues and conflicts,

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[31] The most recent of these experiences were (1) team leadership for the mid-term review of FAO's Community IPM Programme in Asia (2000); membership of the External Audit of the Drentsche Aa for Staatsbosbeheer (2001) and writing a background paper on Dialogue for the National and Basin Dialogue Design Workshop for the Global Consortium on Water, Food and the Environment, and above all, participation in SLIM (Social Learning for Integrated Management and Sustainable Use of Water at a Catchment Level), An EU funded research that studies platforms for catchments management in five European countries.

technological opportunities, incentives and policies, institutions and governance. Dialogues often are facilitated. And they must be perceived within a context that is determined by institutions and policies that shape the outcomes from the interaction among the relevant stakeholders. Figure 3 provides a schematic for a typical dialogue process.

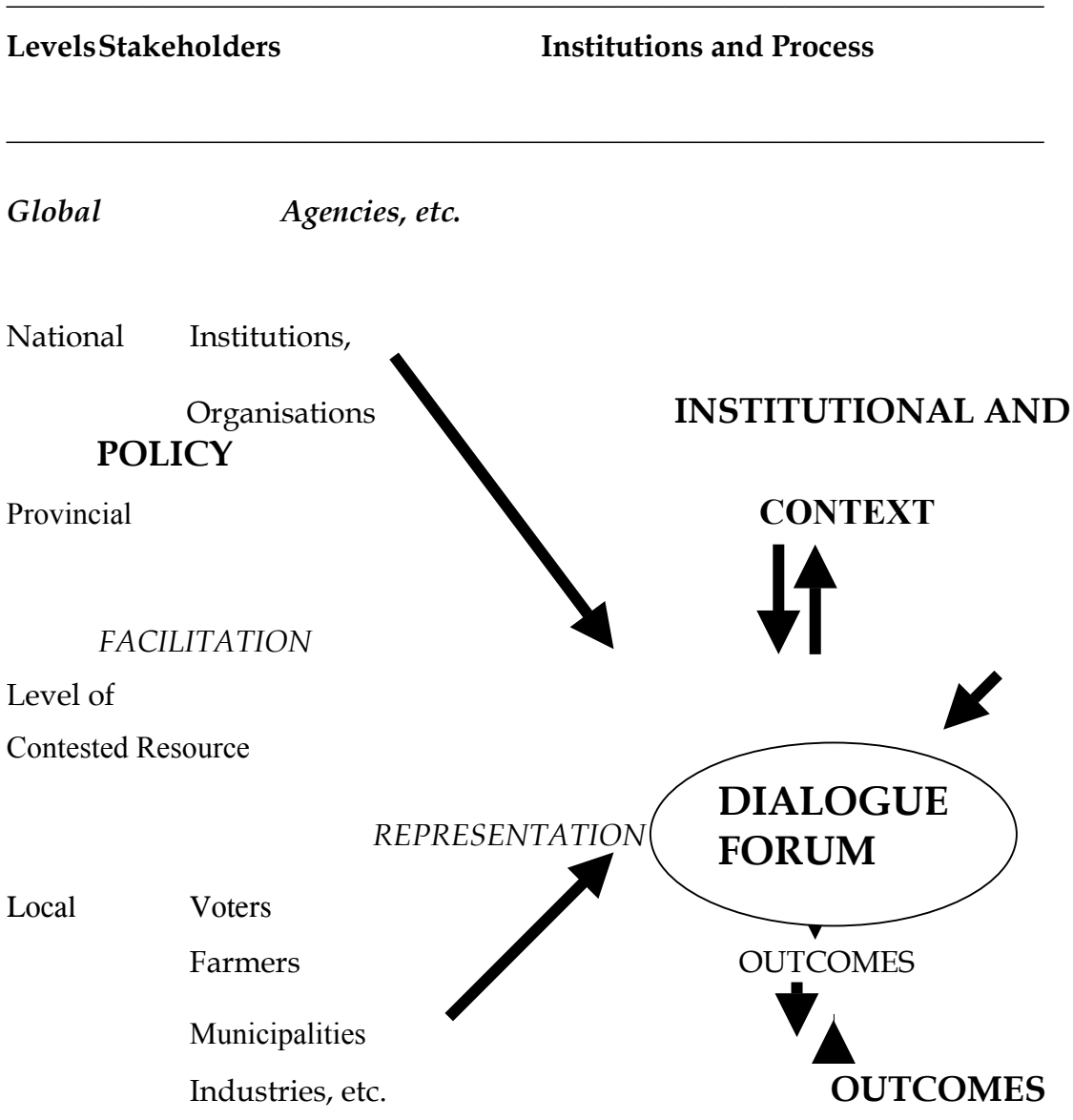

Figure 3: Schematic of major features in a dialogue theatre

The figure shows various *levels of aggregation*. Based on my experience, I have located the contested resource with respect to which stakeholders experience interdependence at a level between say the province and the municipality. This is often called the 'regional level' for which no existing level of government exists. But the contested resource could just as well be located at the global level, e.g., in the case of ocean fisheries or the hole in the ozone layer.

At the different levels, one can find *stakeholders* in the contested resource. At the local level these would be farmers, irrigators, woodcutters, tourists, hunters, etc. Stakeholders at the higher levels would include provincial authorities, national NGOs, the ministry of agriculture, the irrigation board, etc. The '*dialogue forum*' is a relatively small group of people who are selected as representatives of the stakeholders to meet and thrash out agreements (c.f. the committee that represents the Forest Users Group in Box 3). Such forums can emerge on the basis of local activism, or they can be established from above. In both cases, *representation* is a crucial process[32]. Are all the stakeholders represented? Who represents a given stakeholder category? How do representatives interact with their constituencies? It is a common observation that representatives tend to lose their effectiveness as they become more absorbed in the collective culture established under social pressure in the forum.

The conditions for the interaction in the forum typically emanate from the *institutional and policy context.* The involvement of my students[33] and myself in dialogue situations has established that these conditions are crucial for the success of the forum. What are variables at the higher level become parameters at the lower level[34]. This is often insufficiently recognised. One of the important contributions social scientists can make is to create a widespread understanding of the conditions for dialogues to be effective. Typical aspects are:

1. Establishing appropriate forums or platforms
2. Establishing the mandate and legitimacy of the dialogue
3. Forum
4. Engaging Relevant Stakeholders
5. Integration with existing institutions and processes

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[32] Aarts dissertatie
[33] Groot
[34] Fresco dissertatie

6. Defining the Scope of the Dialogue
7. Establishing incentives for participation
8. Co-ordination between national and basin levels
9. Ensuring effective facilitation
10. Establishing and monitoring performance questions and indicators.

These points include the extent to which the higher level is willing to invest statutory powers in the forum, the way in which decisions reached in the forum are implemented through higher level agencies, the sense of ownership, c.q. frustration and alienation of members of the forum, etc.

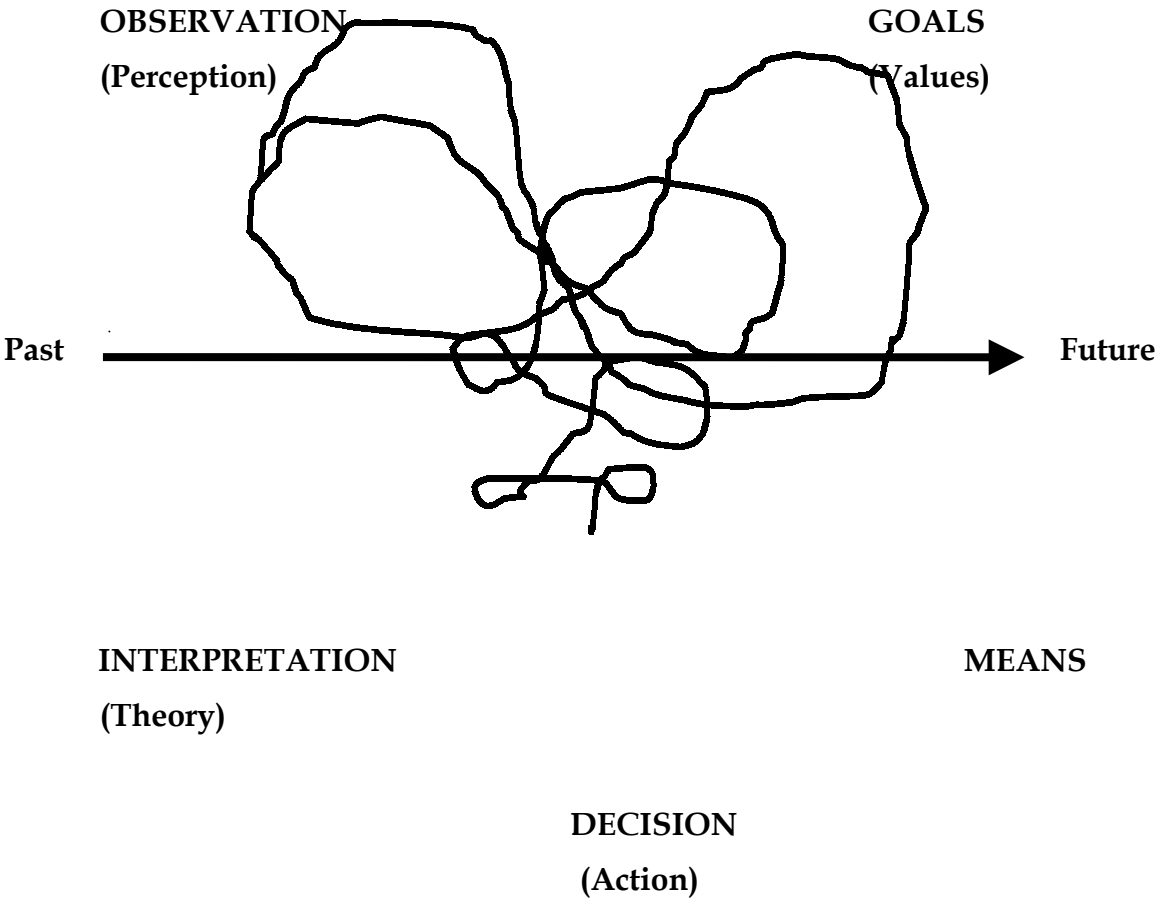

Figure 3: Facilitation of a dialogue process

A key element is facilitation[35]. Facilitation typically involves professionals who are expert process managers, who conduct initial situation analyses, who help build scenarios, end help negotiate desirable conditions, principles and strategies. They would ideally not limit their activities to the forum but consider the entire dialogue, i.e., the entire theatre as their responsibility, and especially would carefully manage the relationships between representatives and their constituencies. To my opinion, training such facilitators is one of the key tasks of beta/gamma science in Wageningen.

Figure 4 illustrates a typical facilitation process, which highlights the elements of agency that we encountered in Figure 1[36]. In Figure 4, these elements are observation or perception, interpretation of theory, goals or values and means. The former two are based on past experience, the latter two concern design of the future. Decision making in groups takes, or at least should take, these four points into consideration when decision making about action. But this does not often happen. In fact, successful groups distinguish themselves from less successful groups by iterating repeatedly through the four points, converging on a collective decision that takes both coherence and correspondence into account. A facilitator helps forums to successfully iterate across the decision points.

Conclusion

The present paper is based on the premise that the Wageningen School of actor-oriented sociology has made a very important contribution to development thinking. But it has had two characteristics that, though perhaps necessary ingredients for impact at the time, have, in my hindsight at least, proven to detract from the social contract of social sciences in Wageningen. The first of these is that actor-oriented sociology has focused on the reasons why people make selfish choices in social dilemmas while neglecting the conditions under which people make co-operative choices. The second is that Wageningen has moved on to a point where there is a widely shared recognition of the need for an interactive perspective, in addition to the conventional technical and economic ones. In fact, many technical chair groups are embracing interaction with a vengeance. In this rapid evolution, actor-oriented sociology cannot afford to focus on the development of a disciplinarian 'school', but must, in addition, participate in the common Wageningen enterprise of building a relevant science. It has a lot to offer.

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[35] Groot, Buck, Maarleveld, King

[36] Based on A.H. Bos (1974). ****

In analysing this offer, the paper has built on actor-oriented sociology, by outlining a theory of agency (or cognition) that can be used to analyse both, theatres that are marked by selfish choices, and theatres that have opted for concerted action to deal with increasing interdependence with respect to a given resource. The paper explored 'dialogues', theatres that are designed to move to concerted action among multiple stakeholders in a contested resource. The perspectives and methodologies of actor-oriented sociology seem as germane to dialogues as they are to battlefields.