

STAKEHOLDER APPROACHES TO PLANNING PARTICIPATORY RESEARCH BY MULTI-INSTITUTION GROUPS

Anna Lawrence, Julian Barr and Graham Haylor

Abstract

The paper draws on recent developments in participatory research to design and test an approach to planning farmer participatory research, which explicitly involves a range of institutional actors in the process. Their different perspectives contribute to a shared understanding of the needs, wishes and abilities of different institutions and members of rural communities to contribute to the research process. The methodology has emerged from experience in a range of countries. It was explored during a project planning workshop in India and further insights are provided from work in Bangladesh and Bolivia. This experience suggests that the method may be particularly useful in participatory research planning, where a range of different institutions are involved and where partnerships are being built between non-government, government and/or academic organisations. The method provides tools and a process for effectively demonstrating differences in the expectations and contributions of different stakeholders and a means for negotiating acceptance of these. The process also helps to establish mutual perceptions. The paper emphasises the value of deconstructing the 'outsider' perspective as projects work towards institutional collaboration.

Anna Lawrence can be contacted at the Agricultural Extension and Rural Development Department, University of Reading, Reading RG6 6AL, UK

Julian Barr can be contacted at the Centre for Land Use and Water Resources Research, University of Newcastle, Newcastle upon Tyne, NE1 7RU, UK

Graham Haylor can be contacted at the Institute of Aquaculture, University of Stirling, Stirling FK9 4LA, UK

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Network Coordinator: Cathryn Turton Assistant Coordinator: John Farrington Administrator: Helen Suich

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Acronyms

CO	community organiser
DoF	Department of Fisheries (India)
EIRFP	Eastern India Rainfed Farming Project
FFDAs	Fish Farm Development Agencies
IARP	Integrated Aquaculture Research Project
ICAR	Indian Council for Agricultural Research
M&E	monitoring and evaluation
NGO	non government organisation
PRA	participatory rural appraisal
RAAKS	Rapid/relaxed appraisal of agricultural knowledge systems
R&D	research and development

STAKEHOLDER APPROACHES TO PLANNING PARTICIPATORY RESEARCH BY MULTI-INSTITUTION GROUPS

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1 KEY DEVELOPMENTS IN PARTICIPATORY RESEARCH: INSTITUTIONAL STAKEHOLDERS AND SOFT SYSTEMS METHODOLOGY

Recent analysis of community involvement in research and development highlights the fact that while NGOs have more experience in participatory research and development, their localised and often personalised experience limits their scale of operation. This is in contrast to the wider reach of state institutions and the ability of the state to create favourable policy environments. State institutions therefore have a valuable role in 'scaling up' such experience (e.g. Wells, 1995; Farrington and Lobo, 1997; Alsop and Farrington, 1998; Turton and Farrington, 1998).

Government institutions, NGOs and farmer organisations have different objectives and motives for their work and there can be communication difficulties between the different organisations. One way forward is to plan the research as a partnership—to analyse the reasons for participation, the capabilities of the different stakeholders and what each wants to get out of the process. Watershed management projects for instance have explored an approach based on planning in partnership (Khandelwal *et al*, 1997; Farrington and Thiele, in press). This approach also holds considerable potential for planning participatory research. Through such partnerships the 'participatory' aspects of research can be broadened to include not only farmers and their partner organisations, but a range of institutions with different resources to offer, interests in the outcome and institutional links to increase the learning from the project.

Another feature of participatory research to date, is that participation has been better integrated into the early stages of the research cycle, than into the later stages (Farrington, 1997). In other words, problem appraisal—through such methods as participatory rural appraisal (PRA)—is more likely to involve farmers than monitoring and evaluation (M&E). A workshop in November 1997¹ brought together practitioners to review experience in using participatory methods for monitoring and evaluation. Discussions compared the need for a single unified M&E system or for several parallel systems and highlighted cases where farmers, NGOs and government institutions were interested in quite different aspects of development projects. Case studies in Bolivia and Laos emphasised the importance of recognising the different data needs of all stakeholders—including farmers, state researchers and donors—who use different information for learning and dissemination at varying scales (Lawrence *et al*, in press).

Stakeholder approaches can be traced to a number of antecedents (Grimble and Wellard, 1997). Of particular interest here is the field of participatory development, which provides stakeholders with a say in their own development. Some of the theoretical bases of stakeholder approaches are shared with soft systems methodology (Checkland and Scholes, 1990). Soft systems methodology recognises that different actors do not perceive and understand situations from the same, objective perspective. Knowledge, and thus knowing, is socially constructed and therefore different actors will inevitably have different, subjective, perspectives relating to their particular social factors, goals, experiences, values, etc. (Bawden, 1990). Soft systems methodology provides a framework for the expression of multiple perspectives and progress towards an accommodation—though not necessarily a consensus. Accommodation is achieved through mutual process, or systems learning. Soft systems approaches have been adapted from their business management origins to the field of natural resources development (Röling, 1996; Engel and Salomon, 1997), but the emphasis has been on development intervention rather than research planning.

One of the issues in the use of stakeholder approaches in natural resources management is how to best represent the many potential stakeholders. Although stakeholders are usually defined as those who can affect or may be affected by a particular activity, there remains a grey area over the extent to which individuals can be lumped into groups for practical purposes (Grimble and Wellard, 1997). This contrasts with an actor-oriented approach, which argues against agglomeration into groups (based on criteria such as ethnicity or gender).

Tension therefore exists between approaches based upon groups and individuals. In the context of modelling agricultural systems, Dent *et al* (1995), differentiates between economic approaches which lump individuals together (e.g. all profit maximisers) and are described as theoretically untenable, and anthropological approaches which disaggregate all individuals, and are untenable on practical grounds. They propose a mid-level of aggregation as most appropriate for modelling studies. It follows that formulation of stakeholder groups should take a similar approach to achieve a realistic balance between representation and heterogeneity of views. Aggregation into stakeholder groups stands on stronger theoretical ground where it relates to secondary

stakeholders, for whom groups are more likely to equate to institutions and thus powers of agency. Achieving unbiased representation of individuals in groups of primary stakeholders is recognised as more difficult (Biggs and Smith, 1998).

2 NEW PROJECT APPROACHES TO APPLYING THIS EXPERIENCE

Several research projects have drawn on the above ideas and lessons to bring a range of stakeholders together for the planning, implementation, monitoring and evaluation of projects.

The objective of one research project in Bangladesh² is to quantify the different natural resource based livelihood strategies that compose floodplain production. The hypothesis is that different groups of primary stakeholders are assumed to have livelihood strategies that can each be represented by a production archetype. The homogeneity within each stakeholder group's archetype is assumed to be greater than the variability between groups, i.e. that aggregation into stakeholder groups of essentially similar strategies (fishing based, sharecropping based, etc.) is a valid assumption. The purpose of the research is to understand patterns of access to, and use of, natural resources by different social actors so that future development can avoid benefiting some groups at the expense of others.

The project employed a reconnaissance social survey, combined with wealth ranking, to disaggregate the primary stakeholders into groups with similar production systems/livelihood strategies. Methods such as problem census (Crouch, 1991) and tools developed for the rapid/relaxed appraisal of agricultural knowledge systems (RAAKS) methodology (Engel and Salomon, 1997) have been used to both prioritise the key production constraints of the different groups and elucidate their perspectives on floodplain systems and different livelihood strategies. Thus an approach drawing on soft systems thinking and akin to stakeholder analysis, is being used to explore different interacting approaches to natural resource use by social groups.

Another project³, developing soil conservation methods in the Andean foothills of Bolivia explicitly uses a stakeholder approach in technology development. After separate reviews of indigenous and scientific soil conservation practices and institutional experiences in the zone, the project brought together farmers, NGOs and scientists in a series of small rural workshops. Each group of stakeholders made informal presentations about their soil conservation practices. There were opportunities to discuss new ideas and farmer groups then planned their own trials, building on the new information they had acquired at the workshop. At the same time, the scientific researchers became aware of the widespread changes occurring in land management as farmers develop their own initiatives to control burning and grazing.

The Bolivian project regards a range of stakeholders as sources of useful information, mainly to be used by farmers. It also explicitly involves the same range of stakeholders in the evaluation of experiments conducted by farmers and scientists on farmers' land. Early experience with this approach suggested that the factors which scientists, economists, NGOs and farmers were interested in, were different. The researchers therefore brought together a wide range of institutional stakeholders to plan ways of learning from the project experience through different evaluation approaches (Montenegro *et al.*, 1998). This proved to be a thought-provoking and effective dissemination tool in itself. It was also clear that such interactions would have been strengthened by recognising different needs and perspectives explicitly at the start of the project.

The experience of these two projects illustrates the value of bringing stakeholders together and stresses the need for stakeholders to be involved from the beginning in planning the research. The opportunity to design and test a stakeholder planning methodology arose with the initiation of an aquaculture research project in India. This project⁴ aims to select, test and develop integrated aquaculture innovations relevant to local needs and conditions in rainfed farming regions of eastern India. Currently, support for aquaculture in India comes from a number of sources, including the national and local line agencies; the Department of Fisheries (DoF)⁵; aquaculture support schemes⁶; the research and development efforts of the Indian Council for Agricultural Research (ICAR) fisheries institutes; and the research of a number of academic departments.

In spite of the popularity of aquaculture amongst resource poor farmers, current recommendations aim to maximise fish production, using high levels of inputs in large-scale ventures to produce large, expensive fish. Although most water resources are put to multiple uses, the systems currently advocated ignore other water users and their interests and objectives. Furthermore current technologies have been developed on research stations and are being extended via a system of technology transfer. They are not being adopted by the rural poor because they do not take account of the resource limitations and multiple objectives of poor women and men.

The Integrated Aquaculture Research Project (IARP) adopted a participatory approach to technology development, recognising that each of the institutions listed above has a stake in aquaculture development and a potential role to play. The project aimed to encourage their participation in the technology development process through a participatory, stakeholder-oriented planning workshop. This followed a situation analysis conducted with farmers and Eastern India Rainfed Farming Project (EIRFP) community organisers and preceded detailed planning with farmers' groups.

3 A CASE STUDY OF A PARTICIPATORY RESEARCH PLANNING WORKSHOP: AQUACULTURE IN WEST BENGAL

Workshop objectives

Prior to the workshop, the project convened a multi-agency research team—consisting of scientists from ICAR and UK and EIRFP project staff—to conduct systems research on the opportunities for and constraints of the integration of aquaculture into farming systems. The team conducted a needs assessment, involving the identification of household priorities and perspectives for different farming systems with access to additional water supplies such as springs, ground water, etc. In addition, a review of international and national experiences regarding options and approaches to integrating fish production into farming systems was also carried out.

The objective of the five day workshop was to understand and prioritise key researchable constraints to integrated aquaculture in eastern India and plan participatory ways of researching solutions to those constraints. The workshop involved all the institutional collaborators in planning the focus, content and nature of the integrated aquaculture research support and identifying and defining research mechanisms. In addition, the research team assessed the range of potential monitoring and documentation options for each type of research. The research agenda itself was determined subsequently with farmers.

The workshop process

This paper focuses on the workshop process rather than on the technical content. The facilitators aimed to stimulate thought on several issues: the idea that research can be conducted by a range of stakeholders (both within and outside the community); to consider how those stakeholders might work together; to think through the concepts of experimental planning; and finally to plan how to facilitate the same process with farmers.

The first activity involved a stakeholder analysis of all project participants, both present and absent from the workshop. Participants identified groups according to their shared perspectives. Effectively these were according to job description and institutional affiliation. Each group then worked together to prepare responses to the following questions:

- What would you like the project to achieve?
- How can you contribute?
- What project outputs would be most useful to you personally?
- What would you like this workshop to achieve?

The questions encouraged participants to think through both what they could offer and what they could gain from the process, emphasising the role of each participant in achieving expectations and deriving benefits. They also helped participants to distinguish between workshop and project goals. Each stakeholder group wrote their responses into cells on a large wall

chart, forming a matrix comparing the objectives, abilities and needs of each group (Figure 1). These were explicitly discussed in the follow-up activity.

This set the scene for thinking about identifying appropriate technologies with farmers and facilitating trials to test them. The process of identifying expectations at the beginning of the workshop also provided a detailed reference point for evaluation of the workshop by the participants once it was over.

Identifying stakeholder groups:

An adaptable process

A key step in the success of the stakeholder approach is the identification of different stakeholder groups. In the Indian case, workshop participants identified key stakeholder groups, who were recorded on a flip chart. This was done in a plenary session during which participants were encouraged to call out names of individuals, groups of individuals or organisations who could affect, or would be affected by, the proposed research.

In practice, the stakeholder groups identified, mapped well onto a list of the organisations involved in the project. Participants identified a single group for farmers, but separated the lead development organisation into three distinct stakeholder groups by job type: management, research and extension. In retrospect, it was surprising that technical and social extension officers were lumped together and this possibly obscured differences of perspective. For example, some of the technical community organisers (COs) were quite production-oriented, whilst others might have had a more holistic view. This emphasises the importance of recognising different stakeholder groups in different contexts. The stakeholder approach can therefore be used as a pragmatic tool for defining research roles, or as an heuristic or learning tool for exploring different perspectives. For each case it might be useful to reconsider the formulation of stakeholder groups.

A contrast to this experience comes from a workshop⁷ in Bangladesh consisting mainly of university academics. Here, stakeholder analysis was found to be less useful due to the greater homogeneity of the audience. Though it was possible to establish stakeholder groups, these were somewhat artificial, separated along the boundaries of academic disciplines.

Issues brought out by discussion of the stakeholder matrix

When the matrix was complete, discussion was facilitated amongst the groups to raise issues associated with participatory research and draw out the preconceptions of participants. The fact that different groups of people have different perceptions, expectations and potential contributions was explicitly addressed throughout the discussion. Each group was questioned by the others

Figure 1 The stakeholder matrix

Stakeholders	1. What would you like the project to achieve?	2. How can you contribute?	3. What project outputs would be most useful to you personally?	4. What would you like this workshop to achieve?
Institutional/enabling environment stakeholders				
i. Co-ordinator of DFID-funded aquaculture research project	Planning and conducting research together with farmers to develop integrated aquaculture suitable for resource poor areas and communities.	Facilitating a participatory research process. Technical experience and literature. Organisational support.	Fulfilling DFID aims for improving sustainable livelihoods for poor rural people. Reports and publications.	Each participant should leave with a plan for future project activities.
ii. Management of large co-operative development project	50% increase in community ponds. 50% increase in production by 31 October 2000.	Provide working atmosphere and work area.	The income generating aspects of aquaculture.	Develop understanding between research people and communities. Research which is needs-based and sustainable.
iii. State government	Develop better methodologies for sustainable and integrated aquaculture.	Provide information about different aspects of aquaculture in the state. Provide manpower and other organisational support.	The art of making development participatory, which will be useful for better implementation of state government programmes.	Interactions among different stakeholders to formulate a comprehensive package for aquaculture research and development.
Technical support stakeholders				
iv. National fisheries research institute	To achieve sustainable aquaculture to improve the rural economy and combat protein malnutrition.	Technical support on fish breeding, seed raising, composite fish culture, carp polyculture, integrated fish farming, women's participation in aquaculture.	Policy and strategies developed for sustainable aquaculture.	To identify resource potential and availability, and technical needs and constraints. To refine the mode of technology transfer.
v. Agricultural university	Vertical and horizontal expansion of aquaculture to achieve production of 2.5 t/ha/year in rural areas	Provision of relevant technology.	Farmers in my region achieving good fish production. This will be a reward to my profession.	Farmers' difficulties should be made clear and a methodology to solve them discussed.
vi. Local socio-technical NGO	An appropriate and affordable technology package for integrated aquaculture, developed with Indian institutions. Build villagers' capacity to understand, evaluate and practice the technology. Create social infrastructure to encourage and support farmers adopting the technology.	Co-ordinate NGO activities to support appropriate technology development, provide training, establish links between government and R&D centres. Undertake M&E.	Obtain an understanding of the problems of current and potential aquaculture adopters and of development practitioners in the area. Create new opportunities for the NGO. Establish an association with the DFID research project. Open up new areas of research and development.	Identify stakeholders and their needs and constraints. Prepare an action plan and logical framework, and agree milestones.
Project implementation stakeholders				
vii. Aquaculture research project team	To develop integrated aquaculture systems. To address resource-poor farmers' priorities and constraints, especially in aquaculture. To make best use of available water.	Implement aquaculture research as planned in this workshop. Integrate technical and social aspects into the research process. Follow the guidance of the project leader. Extend new technologies to project beneficiaries.	Clarify our role in aquaculture research. Technical research findings that can be utilised to remove constraints. Identification of important social aspects in aquaculture R&D.	Systematic planning of aquaculture research. Clarify all stakeholders' roles in the aquaculture research process. Sharing of information and experiences.
viii. Large co-operative development project extension officers (COs)	Transfer of scientific aquaculture to villagers, to achieve production at par with major fish producing countries. Sustainable aquaculture development through a participatory process. Improved ecological conditions.	Make farmers aware of all aspects of aquaculture. Involve farmers in participatory planning and M&E of aquaculture development. Disseminate technical know-how to resource-poor farmers.	A process which is continued by villagers even after the end of project assistance. Gaining technical knowledge, e.g. on suitable fish species and breeding systems.	Identify the best scientific and appropriate low-cost methods for sustainable aquaculture in local conditions. Assist me to improve farmers' fish production and their returns on investment.
Project beneficiaries' proxy voice				
ix. Farmers proxied by extension officers	As a farmer we need more production. This project will help us to improve production and income.	To try out what we are advised by project staff. We have some knowledge of traditional practices. We will try to match these ideas.	-	-

and asked to clarify what they had written. Some of the issues which were discussed and the differences of perspective are highlighted below. The explicit statement of stakeholder differences and the facilitation process enabled participants to debate the types of technology appropriate for the rainfed environment and tribal communities in the project area, different research strategies, sources of information and communication needs. This took place on the first day of the workshop and prepared the participants for more detailed discussion of participatory technology development and plans to operationalise the research methods in the following days.

Maximising or optimising production?

A key feature of an integrated approach is the interaction of various production components where no one component is necessarily maximised. Nevertheless, the 'green revolution approach' to agricultural research continues to influence many scientists working in aquaculture research, who focus on maximising production. This research base is an important information source for those seeking to adapt technologies to more complex and diverse environments and it was important that the distinction between maximising and optimising fish production be analysed. This issue occupied considerable time and energy during the workshop.

Several stakeholder groups emphasised maximum fish production as a project goal. The government research institution and agricultural university fell in to this category; rather more surprisingly, some of the NGO community organisers were also target-focused. The participants themselves picked up on the distinction between the production approach and the integration of aquaculture into existing farming systems, the latter being supported by the state government and an NGO. The detailed situation analysis, prepared and circulated in advance of the workshop, was a key resource for much of this debate.

Despite general agreement that sustainability was a desirable goal, participants found that they could not agree on what this meant, some supporting 'maximum' production and others 'optimum' production within the livelihood system. The technical researchers considered that a minimum of 3 t/ha was required for sustainable production. EIRFP staff felt that such yields were not very likely under local conditions, or could not be maintained without sacrificing other essential water uses. The lack of agreement did not however reduce the value of the discussion, as participants were continuously forced to question the validity of different technologies in the rural environment where the project is working.

Direction of information transfer

The stated contributions of stakeholders to the project (question two in the matrix) fell broadly into three categories:

- information supply;
- facilitating information flow;
- research methods.

The contrast between these responses stimulated a discussion of extension models and their relation to farmer participatory research. It tied in with the discussion about production technologies, the origin of such technologies and the areas in which they are suitable. This led to a discussion of farmers' knowledge, and the fact that some farmers are also experimenting with ways of culturing fish. It left open the question of whether technologies are ready-made, or whether researchers and extension workers should work together with farmers to develop locally-appropriate ones. The state research institute and university had a more top-down approach when compared with the NGOs, who identified a need to facilitate information flow and help farmers conduct research. The debate—though it remained focused on aquaculture development within the context of rainfed farming systems—reflected well-known and more general differences in institutional approaches to development.

Scientific methods and participatory research

One community organiser group specified that the research should be conducted in a *scientific* way. This opened up an important debate with other COs and eventually drew in the scientists. Many COs felt that scientific methods might be inappropriate with poor, often illiterate, farmers. Government researchers felt that scientific methods in the community context involved the transfer of ready-made technology from research stations, rather than farmers conducting the experiments and developing technologies themselves. The COs who had originally proposed the idea said that they were referring not to technology itself, but to the manner of the research process, which should adopt a systematic approach. This range of interpretations triggered a useful discussion of experimental methodology, raising issues which were to be discussed later in the workshop, such as experimental replication and controls. The workshop activities encouraged participants to consider the needs for such rigorous design and whether they were either appropriate or possible under community research conditions. While the discussion was again inconclusive, the difference between stakeholder expectations highlighted important issues which provided an important stepping stone to later planning.

Some participants who worked directly with farmers, expressed anxiety about conducting research (rather than extension) with farmers, considering that farmers would be expecting something from the project. This enabled facilitators to emphasise that research does not prevent farmers from starting something tangible on their farms and that farmers who manage complex systems are continually developing their farming systems and livelihood strategies via their own experiments.

This route (discussions of scientific and participatory methodologies) led to a surprising change of view by one government researcher. He began by supporting the idea of minimum production levels for sustainable fish production, but after identifying participatory research as 'on-farm testing', he suggested that some technologies his institution had developed might not be suitable for farmers.

Stakeholders' perceptions of each other

This type of approach can be extremely successful in revealing stakeholders' perceptions of each other. Such a broad ranging multi-agency team—as in this case—includes stakeholders with profoundly different backgrounds, experiences and perceptions. Whilst introductory activities at workshops can provide a valuable means of breaking the ice, stakeholder analyses begin the necessary, but difficult, task of unpacking differences and requires skilful facilitation.

While some stakeholders tended to dismiss alternative views, it was clear that others—including the project management—respected a wide range of alternatives. Giving space for all views to be expressed early in the workshop helps to facilitate mutual respect and it is therefore an important early activity. Some of the aquaculture scientists who attended the workshop had to leave after the first day, creating a belief that they still saw their role as transferring technology. Stakeholders closer to the farming communities used later discussions of the matrix as an opportunity to question the commitment of such scientists to the participatory process.

One aspect of participation raised at this stage was the absence of farmers from the workshop. The workshop was not in a position to address empowerment issues directly, but at least the stakeholder activity highlighted this as an important issue. The aim of the workshop was to plan—in the light of the participatory situation analysis previously conducted with farmers—the research support that the project could offer, and then to develop a research agenda with farmers. Some of the community organisers and NGO participants role-played farmers' views. They highlighted the 'outsider' perception that farmers were not interested in participatory processes, preferring only to increase food production and income. Other participants felt this view was inadequate and highlighted farmers' own knowledge as an important contribution.

Benefits to the participating stakeholders

The responses to question three in the matrix did not contribute much to the identification of personal motives for being involved in the project. This perhaps reflects a commitment to organisational, rather than personal, goals and may be an aspect of the culture. However the question did elicit several responses that participants found useful, and it encourages each group to see collaboration as a 'give and take' process.

Goal-setting for the workshop

Finally, one valuable output of the discussion around the stakeholder matrix was that it enabled the workshop goals to be clarified. Participants clearly relaxed and felt more focused when this was done. A wide range of participants appreciated the benefits of bringing together stakeholders. Those who are closer to the farmers and more directly involved in the project mentioned the need for a research plan as a workshop output. This perception perhaps distinguished those who felt committed to the project as an on-going process and those who saw it more as an opportunity for information exchange (research institutions and the university).

Aspects which the stakeholder matrix discussion neglected

The stakeholder matrix was not used to analyse power relations, nor the comparative ability of different stakeholders to influence workshop and project outcomes. The workshop was held more than twelve months after the project had commenced, and patterns of collaborative development had already been established with institutional stakeholders. Thus an influence analysis would have been somewhat redundant at this stage. However, it was interesting to note that institutional and social hierarchies were not necessarily reflected in the stakeholder matrix. Though not explored in detail, it appeared that, to use Chambers' (1997) terminology, 'lowers' did not routinely echo the views of their 'uppers' such as senior managers and university professors. This may not be the case elsewhere, where stakeholders are unwilling to vigorously defend a different or divergent perspective.

There is a potential risk that the stakeholder matrix may become a divisive tool, drawing out or emphasising differences between stakeholders, rather than emphasising common interests and overlap. This may be detrimental if, as here, the purpose of the workshop is to draw stakeholders together for further team working (CRDT, 1998). Nonetheless the format of the stakeholder matrix makes stakeholders' ideas about the project explicit, rather than simply plotting the groups along particular axes. This provides a tool which, rather than emphasising conflict between stakeholders, offers possibilities for mutual learning and negotiated changes in project planning (Grimble and Wellard, 1997). However, it is possible to be over-optimistic about how much the participants changed their views as a result of hearing others.

Disaggregating the community

The stakeholder analysis treated all farmers as equal. While role-playing helped, there was not much emphasis on differences within communities. Discussion and diagrams which centred around the sharing of water within the catchment and the knock-on effects of changing water management helped to break down this generalisation.

The purpose of the workshop was not to disaggregate primary stakeholders (farmers) into stakeholder groups. However, in terms of planning aquaculture research (to take place after the workshop), it was considered important that the participants recognise that aquaculture may not affect all farmers equally. Indeed aquaculture may result in changes in water management that might not be beneficial to all farmers and other water users. Using systems diagrams created by participants, the concepts of integrated water resources management (Keller *et al*, 1996) and water as a multiple-user good flowing through the catchment, rather than a discrete on-farm good, were explored. This systems approach to water management highlighted the progression from private to communal property in scaling-up from farm to catchment, and the need to identify upstream and downstream stakeholders in water use planning.

Use of stakeholder matrix as an evaluation tool

At the end of the workshop the stakeholder matrix provided a valuable tool for group discussion of the workshop achievement, for evaluation of the workshop as a whole and for analysing levels of participation. This enabled participants to look back and review what they had learned from the workshop. From the facilitators' point of view it helped to explore changes of perceptions occurring as a result of the workshop.

Debate about the participation of farmers in the workshop

One major issue identified at the end of the workshop, was that some of the NGO participants felt that farmers should have participated in the workshop. Although debate centred on the language requirements for including farmers, it was also important to separate the joint planning function of the multi-institution research team from that of facilitating community-level planning. The background, project framework, experimental models and debate about personal goals would have been of little interest to farmers who have more pressing demands on their time. This is an issue that is frequently considered at planning workshops, especially participatory ones, and it is common to ask how to be participatory without farmers present. The answer must depend on individual circumstances, but at the complex level of inter-agency collaboration (still tricky and relatively unexplored territory) it is essential to sort out together *how* to go ahead, before adding to the confusion by involving farmers in the debate about approaches and expectations of rural development. Participants themselves identified this difference in

objectives of team planning and community planning, when they role-played farmers' views. They claimed that farmers would say they were not intellectuals, not interested in processes, and just interested in getting on with the work and seeing results; instead (in the view of workshop participants) farmers will just want to be told what to do and to have guaranteed results for their efforts.

Change of attitude during the workshop

By the end of the workshop, the NGO participants had gained confidence in identifying problems with existing technology and proposing alternative ways to develop solutions with farmers. Participants were quite frank in their assessment of standard aquaculture recommendations. One said that the state research institution's technology was not acceptable to farmers. Another pointed out that the institution was not aware of farmers' constraints because they conducted their research on-station.

Evaluation of workshop process

Participants evaluated the workshop in several ways, one of which included writing individual comments on paper. This method drew a strong vote of confidence in the stakeholder aspects of the workshop; 20 per cent of participants specified the 'stakeholder system' as the best aspect of the workshop. Another 40 per cent mentioned sharing of knowledge and experience between different types of people. On the negative side, most complaints were about the poor participation of certain stakeholders, suggesting that the methodology had helped them to think about who should share in the process and the responsibilities of those people.

4 CONCLUSIONS

It is possible to draw conclusions at three levels: (i) stakeholder analysis for improving the quality of inter-institution interaction in planning participatory research; (ii) adoption of stakeholder approaches in subsequent phases of the research process and (iii) stakeholder analysis as a generic tool for the facilitation of workshops.

Stakeholder approach for improving inter-institute interaction

The workshop brought together diverse institutions from different sectors as a multi-agency research team to plan, and then participate in, research to improve integrated aquaculture in eastern India. Models of team building from business identify a crucial initial stage wherein team members find out about each other, before the team starts to usefully function. An important factor in this first stage is discovering each others strengths, abilities and motivations. The use of the stakeholder matrix as a preliminary step in the workshop created a forum which elicited some of this information, helped build the team and removed one cause of communication difficulties.

Bringing together heterogeneous groups with different goals is a promising approach to disseminating and scaling up the results of participatory research. Although it is too early to judge the effect of joint planning in this Indian case, it reflects constructive experience in watershed development, reported from Rajasthan (Khandelwal *et al.*, 1997). The Bolivian experience shows the immediate and positive impact of bringing together institutional stakeholders even with the modest objective of discussing their various perspectives on evaluating the participatory soil and water conservation research; NGO visits to farmers' research sites have increased, and an internationally funded NGO has offered funding support for introducing the process to a wider area.

That the stakeholder matrix brought participants together and paved the way for general consensus was demonstrated in the Indian case study. Despite some initial views that a transfer of technology was a desired project goal, a broad consensus emerged that adaptive farmer participatory research works better than the transfer of packaged 'green revolution' technologies in diverse and risky environments. A common understanding of the researchable constraints and the research planning process was engendered by the process.

One area which deserves further work is the extent to which an analysis of power relations could further enhance the use of stakeholder approaches in participatory research planning. The traditional stakeholder analysis, which entails plotting stakeholders along axes of interest in, and ability to influence a project, is normally carried out by a consultant, not with the full participation of the stakeholders themselves. This could have been a useful tool, but the degree to which the plotting of power relations in a participatory forum would have been skewed by tacit power relations between stakeholders is difficult to gauge. Nonetheless, the process employed in the Indian case helped the facilitators to identify stakeholders with low interest levels—or with little time but high interest (e.g. politicians). This can be used to establish the later roles of such stakeholders in the research.

The criteria for creating particular stakeholder groupings need careful consideration. In the Indian case, workshop participants' criteria for combining individuals into a group was either that they came from the same institution and/or that they served the same role (within an organisation). This approach to stakeholder identification may not expose the full range of motivations and expectations for a project. Where (as here) the stakeholder analysis helps in the formulation of different roles in the research process, an institutionally stratified set of stakeholders is a pragmatic approach. Where the aim tends more towards eliciting different goals and perspectives (as in the Bangladesh example) other criteria for forming stakeholder groups may be more appropriate. This is operationally more difficult, as participants may not recognise their membership of artificial groups constructed by outsiders.

Adoption of the stakeholder approach in later stages of the research project

The use of the same facilitation tool in the workshop that participants then use in implementing research plans is a common approach in experiential learning. The stakeholder approach is one which will be of value in at least two respects in future stages of the research project.

The COs experience of the stakeholder approach, which recognised and valued different points of view, objectives and sources of knowledge, will help them in working with the different interest groups in the community. Nevertheless, it is important to recognise key differences between the institutional stakeholder approach used at the workshop and a stakeholder approach used in the community. As noted above, stakeholder groups in the community may not have any natural identity like those of institutions and furthermore, the approach in the community is not necessarily working towards a mutually agreed objective, but seeking to resolve conflict.

Another way in which the approach provides the foundation for a continuous process, is that the stakeholder matrix provides rough evaluation indicators for each stakeholder. It therefore provides a framework for participatory monitoring and evaluation. The objectives of the research were not agreed by all participants during the workshop, and further development of these indicators would be needed to take the matrix forward into a mutually acceptable evaluation system.

Stakeholder approach for workshop facilitation

The stakeholder approach served two useful functions in the facilitation of the workshop. Firstly, it made different stakeholders' motivations and expectations of the workshop and the project explicit at an early stage. This was useful as it enabled facilitators to identify misconceptions about the project and workshop purposes and then tailor workshop sessions to further explore divergent perspectives. By using the matrix to identify stakeholders' areas of strength (in response to the question 'How can you contribute?') it was also possible to map out potential roles for different stakeholders in such a way that they felt that they had determined the roles themselves. It was also clear that participants increased their understanding of the processes and scope of participatory research during the workshop, and that the stakeholder approach played a valuable role in achieving this. It is less clear whether participants were aware of the effect of the approach in helping them to learn.

Secondly, within a planning workshop, the stakeholder matrix can be a useful evaluation tool, providing the questions have been carefully framed. The stakeholder matrix displayed was employed as the focus of a plenary feedback session to explore whether expectations for the workshop had been met. It was also useful for reviewing the initial expectations of the

project and stakeholders' stated contributions in the light of spending five days planning participatory research.

In summary, stakeholder approaches used in a multi-institutional context can improve the level of mutual understanding between stakeholders, improving the basis for negotiated actions. They are also a powerful tool for workshop facilitation when used in an action-reflection loop.

ENDNOTES

- 1 International Workshop on Participatory Monitoring and Evaluation, IIRR, Philippines, 23-29 November 1997.
- 2 'Investigation of livelihood strategies and resource use patterns in Bangladesh floodplain production systems', funded by the Land/Water Interface Production System of the Natural Resources Systems Programme.
- 3 'Participatory improvement of soil and water conservation practices in hillside production systems in the Andean Valleys of Bolivia', funded by the Hillside Production System of the Natural Resources Systems Programme.
- 4 Funded by the DFID High Potential Systems Programme, being carried out in close collaboration with the Indo-British Rainfed Farming Project, managed by the Krishak Bharati Co-operative Ltd. who are supported by a team of consultants recruited by the Centre for Development Studies, Swansea.
- 5 The DoF has block extension officers in all districts where they consider there is aquaculture development potential. The extension effort is geographically very variable, though specifically targeted. The potential for DoF extension support is likely to be limited because funding is very constrained.
- 6 The federal government, in line with its policy of positive discrimination toward Scheduled Castes and its interest in the potential for aquaculture development, has set up across the country a series of Fish Farm Development Agencies (FFDAs). The FFDA remit is the intensive development of inland fish farming, and began in selected districts in 1970.
- 7 National workshop on 'The state of indigenous knowledge in Bangladesh'; BARCIK, Dhaka, 6-7 May, 1998.

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