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BEYOND FARMER FIRST

Rural people's knowledge, agricultural research and extension practice

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sometimes by seeing). This means, in Giddens' terminology, much of what these farmers do lies at the level of practical consciousness, they are aware of what they do, but are not given to reflect upon it discursively:

> Human beings can in some degree – fluctuating according to historically given circumstances – give accounts of the circumstances of their action. But this by no means exhausts what they know about why they act as they do. Many most subtle and dazzlingly intricate forms of knowledge are embedded in, and constitutive of, the actions we carry out. They are done knowledgeably, but without necessarily being available to the discursive awareness of the actor . . . Any analysis of social activity which ignores practical consciousness is massively deficient (Giddens, 1984: 63).

Challenges for participatory research methods

The challenge for participatory research approaches is how to open up to exploration of people's lives, which normally lie beneath the surface. One criticism that is commonly made of farmer-first RRA and PRA methods is that although 'supposedly geared to gaining a fast understanding of peasant level circumstances', they have 'the effect of shielding off planners and scientists from the complexities of rural life' (de Vries, 1992: intro). It is particularly the use of such positivist terms such as 'ITK' which has drawn the fire of academic critics.

Participatory approaches can certainly be devalued very easily. Nowadays, everyone who goes into an area for a day or two and speaks to a few farmers is 'doing an RRA'. On the other hand, there are those who speak of participatory techniques as simply playing games with farmers and therefore of being demeaning and insulting. Clear positions – and methods – are required for tackling these criticisms and misconceptions (Cornwall *et al.*, Part II). Since staff within agricultural research and extension institutions, as also NGOs and other development organizations, do not have the luxury of extended time for social research, it is still preferable to have staff camp out in a rural area for several days than conducting the one-day sortie from a base station which is the usual bureaucratic mode. But this is not a justification in itself of quick and dirty methods of appraisal. There are two questions that have to be addressed:

- Can such methods really allow us to penetrate beneath the surface in an exploration of local production cultures?
- What about the question of empowerment, the emphasis on which is the main reason for the recent advocacy of a switch from RRA to PRA (Chambers, 1992a) – can one really expect government institutions to undertake such a role?

I think both questions can be answered together. No single short-duration exercise – RRA or PRA – can stand by itself. What is required is an ongoing process where methods are linked over time as part of a continuing dialogue. Such dialogue is essential if the social world of farmers is to be opened up and their knowledge to become more accessible. If this can take

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place, then through an exploration of farmers' practical consciousness, a deepening awareness of both the context in which activities occur and the nature of those activities, will also occur. A central aim of such an ideal process would be the empowerment of both farmers and researchers: for farmers so that even the resource-poor and vulnerable can confidently state what they need (and can do themselves), and for researchers so that they have the confidence to address and promote those needs. Thus, the question turns from whether empowerment can be achieved to whether an ongoing process of engagement can be maintained.

The interweaving of knowledge and power in development interfaces

NORMAN LONG and MAGDALENA VILLAREAL

An actor-oriented perspective

During the late 1970s and early 1980s, a number of social scientists interested in the theorization of uneven development turned towards political economy and institutional models for an explanation. While this gave some new insights and a framework within which they could order their data and experiences, it did not in the end provide much practical help to those in the 'frontline' of planned development who were confronted with the day-to-day dilemmas of implementing policy and of interacting with so-called 'target' and non-target groups. Many of the abstractions used were far removed from the detailed workings of everyday development practice and failed to explain the differential outcomes of change. Hence while 'class struggle' and 'surplus extraction' might characterize some important features of intervention, they were seldom enough to explain the particular situations that emerged. This approach in fact promoted a somewhat pessimistic view of the possibilities of initiating change 'from below', through the actions of local groups themselves or by means of outside-planned interventions aimed at increasing the claim-making capacities of local people.

In the field of development practice, extension science was for many years associated with models of the adoption and diffusion of innovations (Rogers, 1962; Rogers and Shoemaker, 1971; Rogers 1983) and with the Land Grant type of applied rural sociology (Lionberger, 1960). More recently this has given way to a more thorough-going application of communication and systems theory (Beal *et al.*, 1986). This is signalled by the mushrooming of research dealing with farmer knowledge and with the complex set of links between research establishments, extension services and the farming population. Simultaneously these developments have been accompanied by a growing interest in 'farming systems analysis', which is aimed at developing a multi-level, interdisciplinary approach to understanding farming practice,

placed within the context of the wider ecological, technical, economic and social constraints and in relation to technological change in agriculture (Hildebrand, 1981; Collinson, 1982; Fresco, 1986).

It is our view that both of these paradigms are essentially inadequate for developing a sound understanding of change processes and fail to come to terms with the complex issues involved. Instead, we aim to elucidate the advantages of adopting an actor-oriented approach. We do this through investigating and theorizing the nature of agricultural knowledge processes. Hence, we concentrate on issues of knowledge generation and transformation and on the organizational and strategic elements involved in rural development interfaces.

Knowledge as an encounter of horizons

Recently researchers have pinpointed certain critical limitations in what Dissanayake (1986: 280) has designated 'the transportational paradigm', for understanding knowledge processes. The paradigm assumes that the process of knowledge dissemination/utilization involves the transfer of a body of knowledge from one individual or social unit to another, rather than adopting a more dynamic view that acknowledges the joint creation of knowledge by both disseminators and users. This latter interpretation depicts knowledge as arising from an encounter of horizons, since the processing and absorption of new items of information and new discursive or cognitive frames can only take place on the basis of already existing networks of knowledge and evaluative modes, which are themselves reshaped through communication. Moreover, although knowledge creation/dissemination is in essence an interpretative and cognitive process entailing the bridging of the gap between a familiar world and a less familiar (or even alien) set of meanings, knowledge is built upon the accumulated social experience, commitments and culturally-acquired dispositions of the actors involved.

Processes of knowledge dissemination/creation simultaneously imply several interconnected elements: actor strategies and capacities for drawing on existing knowledge repertoires and absorbing new information, validation processes whereby newly introduced information and its sources are judged acceptable and useful or contested, and various transactions involving the exchange of specific material and symbolic benefits. Implicit in all this is the fact that the generation and utilization of knowledge is not merely a matter of instrumentalities, technical efficiencies, or hermeneutics (i.e. the mediation of the understandings of others through the theoretical interpretation of our own), but involves aspects of control, authority and power that are embedded in social relationships. It is for this reason that there are likely to be striking dissonances between the different categories of actors involved in the production, dissemination and utilization of knowledge.

As studies of 'experimenting' farmers show, critical social divisions do not coincide neatly with the distinctions between knowledge 'producers', 'disseminators' and 'users' (e.g. Richards, 1985; Box, 1987; Rhoades and

Bebbington, 1988; Millar; Stolzenbach, Part II). A recent study on the use of information technology among Dutch farmers, for example, argues that the category of 'users' must be extended beyond farmers-as-clients to cover also government agencies and farmers' organizations wishing to use the technology to improve their competitiveness *vis-à-vis* other producer groups, to researchers and extension workers who deploy it to promote their own models of farming and to agroindustrial enterprises that seek to tie customers to their business interests (Leeuwis, 1991). Leeuwis' data suggest that conceptualizations of 'information needs' in terms of information technology are often problematic, as they are viewed as 'static', as if they could be 'predicted in advance and relate[d] to formal decision making models'. Dutch cucumber growers, he claims, choose a specific software programme considering all sorts of 'context' situations, such as personal ties and loyalties, group composition and the need to avoid social isolation (Leeuwis and Arkesteyn, 1991).

This case lends support to the argument that so long as we conceptualize the issues of knowledge creation/dissemination simply in terms of linkage or transfer concepts, without giving sufficient attention to human agency and the transformation of meaning at the point of intersection between different actors' lifeworlds, and without analysing the social interactions involved, we will have missed the significance of knowledge itself. Our guiding notions, we suggest, should be discontinuity, not linkage, and transformation, not transfer of meaning. Knowledge emerges as a product of the interaction and dialogue between specific actors. It is also multi-layered (there always exists a multiplicity of possible frames of meaning) and fragmentary and diffuse, rather than unitary and systematized. Not only is it unlikely therefore that different parties (such as farmers, extensionists and researchers) will share the same priorities and parameters of knowledge, but one also expects 'epistemic' communities (i.e. those that share roughly the same sources and modes of knowledge) to be differentiated internally in terms of knowledge repertoires and application. Therefore engineering the creation of the conditions under which a knowledge system (involving *mutually-beneficial* exchanges and flows of information between the different actors) could emerge seems unattainable; and, if indeed one did succeed, this would be at the expense of innovativeness and adaptability to change, both of which depend on the diversity and fluidity of knowledge, rather than on integration and systematization.

Discontinuities and accommodations at knowledge interfaces

In order to explore these issues in more depth it is necessary to develop an analysis of 'interface situations'. We define a social interface as a critical point of intersection between different social systems, fields or levels of social order where structural discontinuities, based upon differences of normative value and social interest, are most likely to be found (Long, 1989).

Interface studies then are essentially concerned with the analysis of the discontinuities in social life. Such discontinuities are characterized by

discrepancies in values, interests, knowledge and power. Interfaces typically occur at points where different, and often conflicting, lifeworlds or social fields intersect. More concretely, they characterize social situations wherein the interactions between actors become oriented around the problem of devising ways of 'bridging', accommodating to, or struggling against each others' different social and cognitive worlds. Interface analysis aims to elucidate the types of social discontinuities present in such situations and to characterize the different kinds of organisational and cultural forms that reproduce or transform them. Although the word 'interface' tends to convey the image of some kind of two-sided articulation or confrontation, interface situations are much more complex and multiple in nature (Long and Long, 1992).

The interactions between government or outside agencies involved in implementing particular development programmes and the so-called recipients of the farming population cannot be adequately understood through the use of generalized conceptions such as 'state-peasant relations' or by resorting to normative concepts such as 'local participation'. These interactions must be analysed as part of the on-going processes of negotiation, adaptation and transfer of meaning that take place between the specific actors concerned. Interface analysis, which concentrates on analysing critical junctures or arenas involving differences of normative value and social interest, entails not only understanding the struggles and power differentials taking place between the parties involved, but also an attempt to reveal the dynamics of cultural accommodation that makes it possible for the various 'world views' to interact.

This is a difficult research topic, but one which is central to understanding the intended and unintended results of planned intervention carried out 'from above' by public authorities or development agencies or initiated 'from below' by diverse local interests. Some of the complexities involved in the interaction of governmental agencies with local groups are explored in the following two cases from Mexico, which illustrate how the understanding of different (and possibly conflicting) forms of knowledge and ideology is central to the analysis of rural development.

Bridging the gap between peasants and bureaucrats

The first case (Arce and Long, 1987) focuses on the dilemmas of Roberto, a *técnico* who tried to bridge the gap between the interests of peasant producers and the administrative structure and its priorities. As a *técnico*, Roberto was the 'frontline' implementor of SAM (Mexican Food System, a national programme which aimed at providing a degree of capitalization to rural producers of basic staples) in direct and regular interaction with his client population. He was expected to follow certain administrative procedures in the implementation of the programme. At the same time, however, he accumulated experience in dealing both with the demands of the administrative system and its routines, and with those of his peasant clients.

The *técnico*'s involvement with these two contrasting, and often conflicting, social worlds produced a body of knowledge drawn from individual

experience which led him to devise his own strategies of intervention in both the village and official administrative arenas. Although it might appear that such strategies are highly idiosyncratic, being based upon the chronology of experience of particular individuals, in fact they are shaped by the possibilities for manoeuvre and discourse that already exist and by the dynamics of the structural contexts within which the different parties interact. The case shows how these different parties or social categories develop their own everyday shared understandings or models for action that originate from and acquire their potency and legitimation through social interaction and confrontation with opposing views and forms of organisation. Roberto could not escape these influences and constraints by attempting to ignore their existence, and if he did try to do so, he would lose legitimacy as a *técnico* in the eyes of both peasants and bureaucrats.

He launched a criticism of the shortcomings of SAM and made charges of administrative malpractice. However, the end result was that he was labelled a 'troublemaker' (*un grilloso*) and sent to a special 'troublemakers unit' (an isolated or 'problematic' zone) for remedial treatment. His lack of success in persuading his administrative superior to accept his approach for mediating between peasant and government interests confirmed and supported the peasants' existing model of government practice and personnel. Hence, their experience with this particular *técnico* reinforced their beliefs in how the state works. The situation also became an important factor in the reproduction of their particular livelihood strategies, which they effectively concealed from government, and in the reproduction of their own diverse configurations of knowledge. The combined effect of these various processes kept the social worlds of peasants and bureaucrats in opposition through the mutual generation of socially constructed systems of ignorance.

Women beekeepers

The interaction and accommodation between world views can be observed among a group of women beekeepers from Mexico (Long and Villareal, 1989; Villareal, 1990). Their case highlights the importance of both muffled and overt power processes, as well as the interweaving of knowledge networks. The beekeepers group was organised as an 'agro-industrial unit for peasant women', a state initiative, following new legal guidelines which called for the creation of peasant women's enterprises. Although each of the women attributed a different meaning to their participation in the beekeeping project and to the benefits they derived from it, their interests were intertwined at certain points, addressing issues relating not only to the project itself, but to household strategies, to relations within their kin networks, etc. Thus, the project comprised shared as well as conflicting definitions by the group members, involving matters such as the size of the enterprise, the relations they assumed with groups and institutions outside the village, and also their self-definition as beekeepers, as women entrepreneurs and as housewives. The women struggled together against

male villagers who labelled them lazy and irresponsible towards household chores, redoubling their efforts to care for their children and husbands. They contested the ideas of ministry officers who pressed them to expand their enterprise and enter into the 'men's world of business'. However, during the process of interaction with each other, with their families and other people from the village, as well as with outside intervenors, the boundaries of the project and their roles as women in the face of it were constantly redefined. This redefinition involved not only their aims as beekeepers, but their prospects and projects as women in other fields of their everyday lives.

Knowledge networks and epistemic communities

Consistent with this emphasis on viewing knowledge generation and acquisition in terms of encounters at multiple interfaces is the notion of knowledge networks, through which, as Box (1989: 167) argues, certain types of information are communicated, legitimated, and sometimes segregated. Using the case of cassava production in the Dominican Republic, Box shows how the lifeworlds of researchers, extensionists and farmers are partially sealed off from each other. He concludes that:

> Knowledge networks are highly segmented. They are, like the sierra landscape with its cleavages, holding communities apart. Instead of one knowledge system there are many complex networks, which lack articulation among each other. The lifeworlds of the participants, or their values, norms and interests, differ so greatly that they do not allow for communication and interaction between the parties.

These differences are intrinsic to the everyday life of the actors, and constitute the social conditions for both change and continuity. A key problem for the analysis and management of so-called knowledge systems is, then, precisely the fragile, changeable or non-existent communication channels between the various parties involved, not the permanence and coherence of existing linkages. Moreover, as Box underlines, the knowledge repertoires of sierra migrants – who arrive with certain pre-existing social networks but also quickly create new ones – cannot therefore be detached from the social relationships and exchanges in which such knowledge exists.

There are important differences in the nature and operation of knowledge networks within the same farming populations. Hence, network analysis can help to identify the boundaries of epistemic communities and to characterize the structure and contents of particular communicator networks. As previous studies of communicator networks have shown (e.g. Allen and Cohen, 1969; Long, 1972; Long and Roberts, 1984), certain individuals or groups often become the sociometric stars of a defined network of social ties, as well as the points of articulation with wider fields. That is, they operate as 'gatekeepers' or 'brokers' to structurally more distant networks and social fields. Gatekeepers play a strategic role in both facilitating and blocking the flow of certain types of information and thus are of crucial importance in understanding the functioning of knowledge

networks. Related to this issue is the proposition that effective dissemination of ideas and information within a network of individuals depends upon the existence of what Granovetter (1983) calls 'weak ties' 'which bridge divergent network segments that otherwise would be isolated from one another' (Milardo, 1988: 17). Such weak ties have been shown to be particularly significant for obtaining access to diverse fields of information, such as, for example, those associated with seeking employment or housing, or information concerning prices in dispersed market locations. On the other hand, to act on information usually requires that individuals secure some support from others. This entails a minimum of normative consensus and, in some situations, the capacity for making rules and enforcing compliance from members (Moore, 1973). The latter presupposes the existence of a relatively dense social network, which might also, paradoxically, hinder the absorption of new information and the quick adaptation to changed circumstances (Long, 1984: 23,fn.14).

These and similar network findings provide a fertile source for ideas on how different types of social networks and exchange contents within networks affect the flow of information and processes of knowledge dissemination/creation. This is a fruitful but still neglected field of research (Cornwall *et al.*, Part II).

Knowledge heterogeneity and agency in farm practice

As the above examples indicate, farming populations are essentially heterogeneous in terms of the strategies adopted for solving problems. Varying ecological, demographic, market, political, economic and sociocultural conditions combine to generate differential patterns of farm enterprise, leading to differences in farm management styles, cropping patterns and levels of production. Implicit in this process, of course, is the differential use and transformation of knowledge: that is, agricultural knowledge varies and is accorded different social meanings depending on how it is applied in the running of farms. This is readily seen in the use of different technologies (e.g. tractor, plough, hoe or axe), but is also evident in the specific meanings that a particular instrument or factor of production acquires (van der Ploeg, 1986). Hence adopted technology is forever being reworked to fit with the production strategies, resource imperatives and social desires of the farmer or farm family.

Included in this is not only the process by which 'new' technologies or packages are adopted, appropriated or transformed, but also the ongoing processes by which particular farmers combine different social domains based on, for example, the family, community, market, or state institutions. The farmer's task becomes that of selecting and co-ordinating the most appropriate normative and social commitments for organizing the process of farm production and reproduction. The decisions the farmer makes, of course, are based upon value preferences and available knowledge, resources and relationships.

Viewed in this manner, the farmer is seen as an active strategizer who problematizes situations, processes information and brings together the

elements necessary for operating the farm. That is, a farmer is involved in constructing her/his own farming world, even if s/he internalizes external modes of rationality.

This line of argument leads us once again to emphasize the importance of an actor-oriented approach to the understanding of knowledge processes. Central to the notion of social actor is the concept of human agency, which attributes to the actor (individual or social group) the capacity to process social experience and to devise ways of coping with life, even under the most extreme conditions of coercion. It is important, however, to stress that 'agency' is not simply an attribute of the individual actor. Agency is composed of social relations and can only become effective through them; it requires organizing capacities. The ability to influence others or to pass on a command (e.g. to get them to accept a particular extension message) rests fundamentally on 'the actions of a chain of agents each of whom 'translates' it in accordance with his/her own projects' . . . and 'power is composed here and now by enrolling many actors in a given political and social scheme' (Latour, 1986: 264). In other words, agency (and power) depend crucially upon the emergence of a network of actors who become partially, though hardly ever completely, enrolled in the 'project' of some other person or persons. Effective agency then requires the strategic generation/manipulation of a network of social relations and the channelling of specific items (such as claims, orders, goods, instruments and information) through certain 'nodal points' of interaction (Clegg, 1989: 199). In order to accomplish this, it becomes essential for actors to win the struggles that take place over the attribution of specific social meanings to particular events, actions and ideas. Particular development intervention models (or ideologies) become strategic weapons in the hands of the agencies charged with promoting them (Long and van der Ploeg, 1989).

This process is illustrated by van der Ploeg's (1989) analysis of how small-scale producers in the Andes succumb to 'scientific' definitions of agricultural development. He shows that, although peasants have devised perfectly good solutions to their own production problems (here he is concerned with potato cultivation), their local knowledge gradually becomes marginalized by the type of scientific knowledge introduced by extensionists. The former becomes superfluous to the model of 'modern' production methods promoted by 'the experts', and development projects become a kind of commodity monopolized and sold by experts who exert 'authority' over their 'subjects'. In this way the rules, limits and procedures governing the negotiation between state agents and farmers and the resources made available are derived (in large part) from external interests and institutions. Hence, although it is possible to depict the relations between Andean peasants and outside experts or state officials in terms of a history of distrust and dependency, science and modern ideologies of development eventually come to command such a major influence on the outcomes of dealings with cultivators that they effectively prevent any exchange of knowledge and experience. This creates what van der Ploeg calls 'a sphere of ignorance' whereby cultivators are labelled 'invisible men'

in contrast to the 'experts' who are visible and authoritative (Salas; Mukamuri and Matose, Part I).

Such processes are by no means mechanical impositions from the outside. They entail negotiation over concepts, meanings and projects which are internalized to varying degrees by the different parties involved. Thus the ability of extensionists to transform the nature of agricultural practice is premised on two elements: their skills in handling interface encounters with farmers; and the ways in which the wider set of power relations (or 'chain of agents') feeds into the context, giving legitimacy to their actions and conceptions, and defining certain critical 'rules of the game'. Counter-balancing this is the fact that cultivators, too, assimilate information from each other, as well as from 'external' sources, in an attempt to create knowledge that is in tune with the situations they face.

Power and the social construction of knowledge

The foregoing discussion brings out the relationships between power and knowledge processes. Like power, knowledge is not simply something that is possessed, accumulated and unproblematically imposed upon others (Foucault in Gordon, 1980: 78–108). Nor can it be measured precisely in terms of some notion of quantity or quality. It emerges out of processes of social interaction and, as suggested earlier, is essentially a joint product of the encounter of horizons. Knowledge must therefore, like power, be looked at relationally and not treated as a commodity. Someone having power or knowledge does not entail that others are without them. A zero-sum model is thus misplaced. Nevertheless both power and knowledge may become reified in social life: that is, they are thought of as being real material things possessed by agents and regarded as unquestioned 'givens'. This process of reification is, of course, an essential part of the ongoing struggles over meaning and the control of strategic relationships and resources that we discussed earlier.

If, therefore, we recognize that we are dealing with 'multiple realities', potentially conflicting social and normative interests, and diverse and fragmented bodies of knowledge, then we must look closely at the issue of whose interpretations or models (e.g. those of agricultural scientists, politicians, farmers, or extensionists) prevail over those of other actors and under what conditions. Knowledge processes are embedded in social processes that imply aspects of power, authority and legitimation; and they are just as likely to reflect and contribute to the conflict between social groups as they are to lead to the establishment of common perceptions and interests. And, if this is the normal state of affairs, then it becomes unreal to imagine that one can gently 'nudge' knowledge systems towards better modes of integration and co-ordination.

If we now look at knowledge dissemination/creation in this way we are forced to place it fully in its social context, not as a disembodied process made up of 'formal institutions', 'ideal-type conceptions' or 'linkage' mechanisms, but as involving specific actors and interacting individuals who become inter-related through networks of interest and through the sharing of certain knowledge frames.

The analysis of power processes should not therefore be restricted to an understanding of how social constraints and access to resources shape social action. Nor should it lead to the description of rigid hierarchical categories and hegemonic ideologies that 'oppress passive victims'. Standing back from the tendency to empathize ideologically with these hapless victims, one should, instead, explore the extent to which specific actors perceive themselves capable of manoeuvring within given contexts or networks and develop strategies for doing so. This is not to fail to recognize the often much restricted space for individual initiative, but rather to examine how actors identify and create space for their own interests and for change (Long, 1984).

Making room for manoeuvre implies a degree of consent, a degree of negotiation and a degree of power – not necessarily power stored in some economic or political position, but the possibility of control, of prerogative, of authority and capacity for action, be it front- or backstage, for flickering moments or for long periods (Villareal, 1992). Power, then, is fluid and difficult or unnecessary to measure, but important to describe more precisely. It is not only the *amount* of power that makes a difference, but the possibility of gaining an edge over others and using it to advantage. Power always implies struggle, negotiation and compromise. Even those categorized as 'oppressed' are not utterly passive victims and may become involved in active resistance. Likewise, the 'powerful' are not in complete control of the stage and the extent to which their power is forged by the so-called 'powerless' should not be underestimated. Rather, as Scott (1985) points out, one must speak of resistance, accommodation and strategic compliance. Although resistance is rarely an overt, collective undertaking, individual acts of subtle defiance and the muffled voices of opposition and mobilization nevertheless act to divert the possibly coercive or oppressive strategies of others. In this manner, accommodation and strategic compliance – sometimes shielding acts of defiance – become regular features of everyday social life (Scott, 1985).

All this suggests that power differentials and struggles over social meaning are central to an understanding of knowledge processes. Knowledge is essentially a social construction that results from and is constantly being reshaped by the encounters and discontinuities that emerge at the points of intersection between actors' lifeworlds.

The discourse and dilemma of 'empowerment'

This view sheds light on crucial dilemmas faced by development practitioners. For example, much recent work within development enterprises is oriented towards the aim of 'empowerment' of local groups (Huizer, 1979; Chambers, 1983; Kronenburg, 1986). Although the concept of empowerment forms part of a neo-populist discourse supporting 'participatory' approaches that emphasize 'listening to the people', understanding the 'reasoning behind local knowledge', 'strengthening local organizational capacity' and developing 'alternative development strategies from below', it nevertheless seems to carry with it the connotation of power injected

from outside aimed at shifting the balance of forces towards local interests. Hence it implies the idea of empowering people through strategic intervention by 'enlightened experts' who make use of 'people's science' (Richards, 1985) and 'local intermediate organizations' (Esman and Uphoff, 1984; Korten, 1987) to promote development 'from below'. While acknowledging the need to take serious account of local people's solutions to the problems they face, the issues are often presented as involving the substitution of 'blueprint' by 'learning' approaches to the planning and management of projects (Korten, 1987) or in terms of 'new' for 'old' style professionalism aimed at promoting participatory management and participatory research and evaluation methods (Chambers *et al.*, 1989).

Such formulations still do not escape the managerialist and interventionist undertones inherent in development work. That is, they tend to evoke the image of 'more knowledgeable and powerful outsiders' helping 'the powerless and less discerning local folk'. Of course, many field practitioners, who face the everyday problems of project implementation, show an acute awareness of this paradox of participatory strategies. Kronenburg (1986: 163) – himself a practitioner – for example, provides an insightful description of some of the dilemmas of 'empowerment' experienced by implementors of a non-formal education programme in Kenya which was strongly committed to participatory and conscientizing goals. Discussing the interplay between emancipatory and manipulative processes, he explains:

> There was contradiction looming in the thin line between the use of DEP [Development Education Programme] skills to enhance the capacity of communities and their members to decide on their own development priorities or to attain goals the facilitators themselves had set. Often, discussions on the topic of manipulation emerged at national . . . workshops usually at a stage that trust between participants and facilitators had not fully developed. Yet, the possibility was always there that unwittingly participants would be following the path laid out by the facilitators . . .

Closely related to the issue of emancipation versus manipulation is the power of the facilitator to either allow group dialogue to follow its course or to control the discussions by imposing various forms of discipline. By applying time limits on topics judged irrelevant or by emphasising topics familiar or foreseen for discussion, the facilitator could influence the direction of the discussion. This is a dilemma facilitators, applying a non-directive methodology, are faced with continuously. To forestall manipulation, DEP workers attempted consciously to develop sensitivity to group needs and feelings. To do this optimally facilitators always operated in teams to provide counterweight to the undesired tendencies inherent to their work (Kronenburg, 1986).

Kronenberg's account exposes the multi-faceted nature of power inherent in the relations between development practitioners and their local 'partners' in participatory projects. It also shows how external social commitments intrude into this arena and shape the outcomes of participatory activities. Hence his study adds weight to the earlier argument that social processes (and especially so-called 'planned' interventions) are highly complex and

cannot easily be manipulated through the injection of external sources of power and authority. The issue he mentions of conflicting loyalties and ideologies, likewise, brings us back to the earlier discussion of negotiations over 'truth' claims, battles over images and contesting interests which are implicit in the interlocking of lifeworlds and actors' 'projects'.

The Kenyan project illustrates the central importance of strategic agency in the ways in which people (i.e. development practitioners, as well as local participants) deal with and manipulate certain constraining and enabling elements in their endeavours to enrol each other in their individual or group 'projects'. The case also suggests the significance of social networks for gathering information, forming opinions, legitimizing one's standpoint, and thus for generating differential power relations. The idea that designing participatory strategies based upon the effective use of local knowledge and organization would enable one to avoid, what Marglin (1990) calls 'the dominating knowledge' of science and western 'scientific' management is clearly untenable (Marsden, Part I). The question of empowerment, then, brings us back the central issue of the encounter between actors and their knowledge repertoires.

Conclusion

The foregoing discussion provides a profile of current theoretical concerns essential for developing an actor-oriented analysis of agricultural knowledge processes and development intervention. The agenda is extensive and the theoretical issues daunting. But it is our view that we have made important headway towards developing a revitalized sociological perspective that challenges systems models and interventionist thinking. Such an approach enables us to build a better bridge between theoretical understanding and social practice. It does this by providing a set of sensitizing analytical concepts based on an actor and interface perspective and a field methodology geared to developing theory 'from below'. This framework necessitates a thorough reassessment of issues of intervention, knowledge and power. Yet let us not be intimidated by the enormity of the tasks before us. Though arduous, the path ahead is likely to be exhilarating and much more in tune with the needs and dilemmas of frontline practitioners in search of a better understanding of intervention processes and their roles in them.

Indigenous management and the management of indigenous knowledge

DAVID MARSDEN

Local strategies

The idea of 'indigenous management' is seen as a possible way forward in the task of strengthening and sustaining local institutions and capacities. To

reveal some of the complexities that lie behind this notion, many threads of analysis must be pulled together, each with its own interpretation of reality and conception of the task of development.

The current discourse of development is dominated by the supposedly neutral vocabulary of management. This has replaced, or is rapidly replacing, the lexicon of economics. Efforts are directed at increasing efficiency, economy, effectiveness and providing opportunities for the encouragement of private entrepreneurial activity. A radical reassessment of the roles and responsibilities of the state is taking place. Policies for privatization aim at sectors that have traditionally been defined as part of the public domain. This is not, of course, peculiar to the Third World. It is based on the presumed superiority of a particular world view that is dominant in the liberal democracies of the West. A new realism, not governed by dogmatic adherence to hegemonic convictions, emerges as the West questions the viability of large public corporations and ushers in the 'post-Fordist' era. Nowhere is this more evident than in former socialist countries as they struggle to loosen the chains of state control and create more opportunities for individual initiative.

A renegotiation of the limits of individual freedom in the West has meant an attack on those institutions that are perceived to hinder expressions of individual entrepreneurial activity. This has resulted in the unleashing of what some see as the rapacious and avaricious pursuit of profit and self-interest. A similar renegotiation in the socialist bloc has resulted in attacks on the monopolistic control of the state, calls for regional autonomy, and the radical restructuring of entrenched and ossified political systems. These transformations run parallel to fundamental changes taking place throughout the Third World. In those countries, failures of top-down, externally-conceived, development projects and programmes have led to the elaboration of locally-based, indigenous strategies and the adoption of more flexible management approaches.

As efforts are made to get government off the backs of people, more attention is paid to the development of local institutions that are small enough to command authority and promote participation. The complexities of micro-level intervention move centre stage and analyses of local cultures gain greater importance. The assumption is that people will be more responsive if they are central to the design and implementation of programmes that affect their lives and livelihoods, and if they make some personal investment or commitment to them. A recognition that there is more to development than just economic productivity leads to a focus on *processes* as well as products, on the strengthening of local institutional capacities and on the fostering of constructive dialogue.

In pursuit of these aims, the appeal of indigenous management is self-evident: the mobilization of local strategies by local people for the control and use of their own resources in the struggle for self-reliant development. However, a major conceptual problem immediately arises when we reflect on what the terms 'indigenous' and 'management' mean, both of which are key expressions in current development discourse. The different ways in which they are used and the meanings attached to them need to be

examined before we can assess the appropriateness of advocating indigenous management further.

An analysis of the terms takes us back to the essential nature of the development task and to basic problems of interpretation currently at the centre of discussions within the social sciences. *How are we to understand* other cultures? If management is no longer the application of explicit sets of techniques (if it was ever), what is it? In development strategies that emphasize indigenous creativity, what is the role of the 'outsider'?

The Oxford English Dictionary defines 'indigenous' as: 'born or produced naturally in a land or region; of, pertaining to, or intended for the natives.' This definition raises more questions than it answers. What is meant by 'natives'? What does 'naturally' mean? Is the term equivalent to 'traditional'? An additional meaning is also implied. This refers to 'authenticity' and local 'legitimacy', derived from claims for originality, not so much in terms of uniqueness as in connections with an unbroken historical association with a place. As Illich (1982: 108) has pointed out in his analysis of vernacular culture: 'Each village does its own dance to the tune of its own regional music.'

Conservation and preservation

A dominant theme in the development debate is that of 'conservation' of resources, both natural and intellectual, in the interests of 'preserving' heterogeneity. The monolithic forces that apparently guide modern development strategies and lead to the homogenization of cultures are responsible for the destruction of our environment and the disappearance of worlds of understanding. This 'declining base' reduces opportunities for expansion and for cultural and natural adaptation in the future.

Yet strategies for 'conservation' and 'preservation' are informed by a world view which assumes that the earth offers a finite number of opportunities. This belief influences many attitudes to education and the acquisition of knowledge generally. It ignores the ways in which knowledge is created and the dynamism and imminence of culture and resources.

Techniques, technologies and cultural forms (organizations and institutions) do not stand alone. They are tools that can be used in a variety of ways. It is important to understand how they are employed and why they are applied, and to discover who uses them and under what conditions. Knowledge, like technology, is never neutral. It can never be completely packaged. Its history and its content must be uncovered if we are to approach its meaning and not be mystified by its current form. This is the essence of the 'process' approach to development which seeks not to impose a preconceived understanding of the most efficient, effective and economic ways forward, but to build, through increased trust and mutuality, sustainable strategies that create room for manoeuvre by concentrating on where people are, instead of where we would like them to be.

Multiple actors, multiple knowledges

Despite these shifts, the development project remains only partially articulated with the realities of everyday life. Indigenous management is an attempt to further this articulation. This process can be viewed from two competing theoretical perspectives. Both perspectives agree that the issue of control is central to the managerial task. As Reed (1989: 34) has observed, for those who perceive management as a neutral activity 'the process of control is broken down into an interrelated set of mechanisms or procedures through which [it] can restructure . . . to meet more effectively the demands and threats posed by its environment.' The issue is finding the mechanisms that can produce a neater fit between those doing the managing and those being managed. For those who perceive management in more Machiavellian terms, the problem of control is 'one of simultaneously securing and mystifying the exploitative relationship between a dominant and a subordinate class whose interests are placed in a position of structured antagonism because of the conflicting priorities embedded in such a relationship' (Reed, 1989: 34). The instruments of control are enshrined in 'good faith' relationships that disguise the actual ways in which unequal relationships are maintained and through which surplus value is extracted (Bourdieu, 1977).

There are many ways of experiencing, perceiving, understanding and defining reality. In addition to conflicting interpretations generated within the western scientific tradition, there are contending interpretations within local groups – the knowledge of elites is different from that of peasants; the knowledge of women is different from that of men, and so on. If indigenous management is about utilizing local, folk, or vernacular knowledge and organizational methods in the service of more appropriate development strategies, then it is important to investigate how that knowledge is gained and interpreted, what the knowledge is and how it might be most effectively used. Knowledge is a key asset in securing control and thus any discussions about it must necessarily recognize the political dimensions of its use (Drinkwater; Long and Villareal; Matose and Mukamuri; Sikana, Part I).

How is knowledge produced? What are the differences between indigenous knowledge and exogenous knowledge? Who creates the distinction between these forms of knowledge, bearing in mind that many of the scientific underpinnings of Western knowledge are derived from non-Western (indigenous?) sources? What sorts of knowledge count and who decides when they count? To answer such questions it is necessary to analyse the ways in which knowledge is generated, exchanged, transformed, consolidated, stored, retrieved, disseminated and utilized (Scoones and Thompson, Part I).

A commonly asserted dichotomy distinguishes between the written and the oral tradition. 'Indigenous' is associated with 'oral' – information is not written down and thus remains outside recorded history. One temptation is to consign this oral knowledge to a position of inferiority. The old divisions between 'traditional' and 'modern' are thereby resurrected in a new way. Another temptation is to romanticize and idealize local knowledge in a

new reverence, and imply thereby a functional separation between two sorts of knowledge validated by different sets of criteria. The superiority of one form of knowledge is proclaimed by one and the essential separation or incommensurability of disparate knowledge bases, blocking comparisons, by the other.

When conceptualizing indigenous knowledge systems we are often thinking of 'other cultures' and the technical and non-technical features of such cultures. Such knowledge is supposed to be based on unique epistemologies, philosophies, institutions and principles which are seen often as tied to mystical or religious beliefs (Millar, Part II; Salas, Part I). All knowledge is culture bound whether it is classified as indigenous or scientific, oral or written. The danger is that we perceive cultures as discrete, bounded systems (undynamic and unchanging). Current research in the production of ethnographies cautions against such a view and forcibly proposes a much more sensitive approach to modes of cultural representation. The activity of cross-cultural representation is distinctly problematic. As Clifford (1988: 23) has pointed out: 'An ambiguous multi-vocal world makes it increasingly hard to conceive of human diversity as inscribed in bounded, independent cultures.'

Specialists and generalists

Can we recaste the distinction between indigenous knowledge and exogenous knowledge, then, in terms of distinctions between 'specialists' or 'professionals' and 'generalists', or 'amateurs'? Those employed as 'experts' in development projects bring specialist knowledge to the task as distinct from the layperson who brings practical knowledge of everyday existence. Until recently, local, practically based knowledges have largely been ignored in development; professional, specialist knowledges have dominated. But what new thinking about management and organization suggests is that effective pursuit of the complex tasks of sustainable development requires both specialists and generalists.

Traditional knowledge and decision making shares many of the attributes that modern management theory is trying to promote – flexibility, fluidity, responsiveness. Modern management principles, as with local agricultural practice, conflate the roles of specialists and generalists. The image of order, precision and regularity is almost always clouded by informal considerations and processes. Referring to changes in industrial enterprises, Reed (1989: 117–8; 155) has commented:

> Managers' interest in participation strategies springs directly from [the] problem of consent and coordination that is at the heart of the 'management' job . . . The search for flexibility has become something of a catch-all concept for everything and anything employers find desirable to increase operational efficiency and company profitability.

This thinking has shifted emphasis away from management as a science, towards the norms, conventions and belief systems in 'an organisation that can lead to excellent performances' (Davies *et al.*, 1989: 3).

So the trend in modern management is towards increased generalization within a professional context that attempts to secure control over more and more areas of knowledge. It is interesting to note that in current discussions of NGOs, they are being advised to move in the opposite direction by casting off their amateur second-generation image and developing 'third' and 'fourth' generation characteristics of increased professionalism (Pretty and Chambers; Uphoff, Part III).

The development of more effective managerial systems requires increasing amounts of general, informal, indigenous information, a strong partnership between specialist consultants and generalist practitioners and a commitment to new forms of organization that allow many voices to be heard. An interpretative social science, committed to uncovering the hidden, excluded, or ignored agenda of social action provides the prerequisites for an examination of these sorts of indigenous knowledge, currently at the centre of the debate about indigenous management.

'The technicians only believe in science and cannot read the sky': the cultural dimension of the knowledge conflict in the Andes

MARIA A. SALAS

Reading the sky

The purpose of this case study is to analyse the knowledge conflict experienced by contemporary Andean peasants when they express 'we are losing our ancestral knowledge because the technicians only believe in modern science and cannot read the sky'. This message conveys the problem of the interactions between science, technology, development and history and the nature of the interplay between two world views which are closely intertwined in Peruvian society.

This paper focuses on three main issues. The first concerns the power dimension of knowledge: who benefits from the knowledge interaction? Too often there is a detrimental impact of modern science on ancestral, indigenous knowledge. The second issue suggests the question: can Western science understand Andean knowledge? Since knowledge is inextricably linked to cultural interpretation and knowledge is interpretation of interpretations, is western science capable of getting inside the system of meaning of Andean knowledge without distorting it? The third issue is: whose limitations are causing the conflict? Is Andean knowledge limited by its cultural setting? Or is it that Western, modern knowledge has its own epistemological limitations? Or, is it that both knowledge systems are embedded in totally different and incompatible world views?

the solution of agricultural problems. A concrete effort of the University of Ayacucho and an NGO can give us an idea of the potentials of this reversal (PRATEC/UNSCH, 1990).

Researchers and technicians are trained to be able to develop in their own institutions a coherent position in favour of Andean knowledge. They learn how to perceive reality in Andean categories and to generate a theoretical understanding about Andean agriculture within the categories of peasant classificatory systems.

Developing a common language

Peasant knowledge needs to be approached from its own cultural categories and achievements, instead of from the technical problems identified through methods and procedures that are intrinsically biased by external imposition. Such methods stress artificial differences and deficiencies instead of helping to arrive at a common language allowing intercultural communication (Salas, 1991).

To start fruitful communication we have to stop looking at the problem as identified under a scientific prism. This is the case of the communication experience of the peasant magazine *Minka* from Huancayo, Peru. After some failed trials to speak for the peasants and extend technical knowledge, it evolved into a periodical where the peasants created their own forum for communication of knowledge. The success of the magazine lies in having assumed the Andean discourse in both its contents and its form and to have focused on the culturally meaningful categories of peasant society (Salas, 1988).

Other fora can also facilitate open, constructive dialogue between local people and scientists. In a recent workshop in which I took part, each peasant delegate described the 'customs' known about growing potatoes. Their contributions were written in the form of family diaries about potato production. Others collected different varieties grown in their communities and explained in a detailed way, the different names of each variety, where they come from, where they grow, when they are sown, different cultivation procedures, when they are harvested, what further transformations can be done with them and other special characteristics. Farmers brought between 14 and 35 identified varieties. With their potato collection they explained the conditions of actual production, distribution and consumption – always accompanied by myths, rites and humour. As a result of a comfortable atmosphere of exchange among peasant specialists, the structure of their knowledge was expressed in an explicit manner.

After this process, they shared their achievements with a group of potato specialists from the national and international potato centres. At the beginning, it was difficult to arrive at a common language, but after two days of intense efforts to learn from each other and becoming aware of cultural distances, the groups coincided on several aspects. Peasants proposed that the scientists support them to construct and reconstruct terraces, to continue to grow their different potato varieties, to stop the use of harmful chemical products, to reconstruct the old canal system and so on.

Agronomists agreed that they need to change some of their far-from-the-field research and extension activities and to continue with these methods of exchange and communication.

Epilogue

The final words of a peasant specialist still sound in my ears:

> We need that you learn more about the influence of the stars in our Quechua language. That you help us to maintain and strengthen our customs and that of our ancestors. If we can engage scientists, we will influence the Agrarian Policy and make it democratic in favour of the community. And so we will understand each other better.

Rural people's knowledge and extension practice: trees, people and communities in Zimbabwe's communal lands

FRANK MATOSE and BILLY MUKAMURI

Official knowledge and extension practice

Official knowledge on forestry has been extended to the Zimbabwean rural poor without any serious attempt at understanding what farmers already know. The history of extension practice cannot be divorced from the politics of domination, modernization and development of the poor under colonialism. Under colonial rule, the poor were seen as backward, uncivilized and consequently unknowledgeable.

Extension practices, therefore, have a long history of being developed elsewhere and passed on to farmers without any attempt at connecting with their practices. As early as the 1920s, a need for tree planting in communal areas was identified. This need arose out of the heavy cutting of the indigenous woodlands, especially by commercial mining concessions. Planting trees was also seen as modern part of the civilizing project of colonialism. The Imperial Forestry Institute in Oxford was the centre in which most Rhodesian foresters were trained and from which official knowledge emanated and was extended to the rural poor across Africa and Asia. The failure to recognize local knowledge can be illustrated by a statement from R.S. Troup (quoted by McGregor, 1991), director of the Institute from 1924 to 1939:

> If educated Europeans fail to realise the necessity for maintaining forests, it is expecting too much of the African willingly to conserve forests on hillsides and in catchment-areas in the interests of generations to come. His whole tendency in the past has been to destroy forests, and he cannot understand the reason for laws framed to preserve them.

In fact, the local people had, and still have, various ways of preserving and managing their forests (e.g. Bradley and Dewees, 1993).

The traditional management of indigenous resources: social and political dimensions

In this paper, we will draw on case studies from southern Zimbabwe to provide a deeper understanding of local resource management practice in a complex political and social context. The consequences of external intervention into this complex local setting are explored through the examination of an NGO project. The discussion focuses on woodland and tree resources, but offers broader insights into the social and political dimensions of knowledge construction and application.

The way knowledge is articulated is directly linked to the positions individuals or groups occupy in the social strata. Shona society in the communal lands is socially and politically organized whereby different groups of people – individuals, men, women, children, immigrants, clans, lineages and chiefdoms – have different degrees of control over, access to and ownership of resources. Decision making is thus highly differentiated. For example, women have less rights than men when land allocation is considered. Some immigrants (e.g. people who arrived after the 1930s) have less access rights than ruling lineage members. This results in the inequitable distribution of wealth and helps shape relationships between people and resources. Interventions aimed at changing environmental resource management therefore relate to issues of control, access and ownership.

Decision making is affected by the nature of local political leadership. Different forms are found in rural Zimbabwe, ranging from the traditional lineage leaders to more recent elected village chairpersons or councillors. Sometimes the two structures become fused, in other cases conflict arises. In many instances lineage leaders lack legitimacy from the state and from local people themselves, but their ability to control their subjects varies from one area to the other. Decision making is either through 'consensus' (usually of male elders) or through injunctions made by the most powerful individuals in the community. The effect of a decision is subject to many factors, for example the degree of recognition of the particular individual and sometimes his or her wealth. Lineages are not politically united groups, but rather comprise various factions which are always at each other's throats. The ruling clan is thus at an advantage when it comes to resource allocation.

Local knowledge about trees and woodland resources is framed within this setting. Since rural societies are not homogenous in terms of material resources under their command, attitudes toward tree resources are different. In Zvishavane and Chivi districts the relatively rich have a negative attitude towards the planting of trees. Their understanding of trees is remarkably limited and issues of management are focused on the private planting of exotics. The poorer members of the community show a greater concern for the environment and explain that its destruction leads to the spirits being angry with them which results in droughts and increased poverty. This argument does not appeal to the rich, presumably because they

have other sources of income not dependent on natural resources; for example, husbands are employed in urban areas (Mukamuri, 1992).

Knowledge about particular resources is common to people who occupy a certain niche (ecological, sociological, economic or political) in society. For instance, knowledge about the effects of certain tree species on crops is best explained by people in nutrient-deficient sandy soil areas. By contrast, people in nutrient-rich, heavy-soil areas have less interest in tree humus and quickly accept the destumping of all trees from their fields. Local knowledge about trees is therefore not universal or consistent, but rather localized to suit environmental constraints.

Cultural beliefs

Cultural beliefs also shape people's perceptions and knowledge. Some people protect trees because they believe that they bring rainfall by stopping clouds, as mountains do when causing orographic rainfall. Religious associations are also common; for example, some people believe that big trees should be conserved because the cuckoo bird (*hwaya*) sings for rain and it likes to rest in such trees. Ancestral spirits (*midzimu*), also come and rest in these trees when they attend rain making ceremonies. People also protect trees for fear of retribution. For example, if they cut down trees they can be punished by the high god (*Zame*) who does it by stopping rains.

To understand the way the idioms of conservation are framed as they are, one has to look carefully at the patterns of resource distribution and what happens to conserved areas. As in the wider domain of the struggle over knowledge and the control of resources, at the local level the political and cultural set-up results in dependencies and peripheries in terms of resource access and control. The elites benefit by being powerful, by being seen to be providing and by manipulating the discourses of religion, conservation and development. Power is reinforced through the control of the most important resources – water, and in particular rainfall, soil and trees. The management of resources is at the same time political, religious and economic, played out in a complex and highly differentiated rural society.

Local knowledge and farmer management of indigenous resources are set within a complex local social and political framework. Conservation should be understood in the context of the political monopoly over resource access and control by the ruling elites. It should not be understood solely within a framework of simple economic rationality. The history of resource conservation and management in the communal areas thus must be seen within the context of conflicts associated with resource distribution. Political power, together with 'conservation' and 'ecological' arguments, is used to enhance the economic and political status of rural elites. Political-religious power, framed in arguments about resource management, are thus being used to keep out the politically weak (for example, immigrants).

Community management of woodlands: the Chivi and Zvishavane Project

The Chivi-Zvishavane Project is a research-action project based in the dryland communal areas in the central south of Zimbabwe and supported

by a Harare-based NGO, ENDA-Zimbabwe. The project is based on a participatory approach to community planning at village level. The planning process established through the project has to take account of the political, cultural and economic contexts of resource management in the communal lands decribed earlier. The project has shown how establishing a 'participatory' process is no easy task.

In any village a wide range of people are interviewed by the ENDA community worker (CW) in order to avoid bias and get a range of views from the rich and the poor, men and women, young and old. These interviews and workshops attempt to explore the multiple interests of local farmers. Following research in a village, the CW calls a discussion and planning workshop. Here, the CW feeds back the results of her or his findings and a list is constructed of the trees farmers say they would like to plant in their fields, homes, gardens and grazing areas. The list is then used to form the menu for the nursery contents, which are managed by the CWs and their nursery attendants. The seedlings are raised and issued to the communities at the beginning of the rainy season. The CWs rely heavily on farmer knowledge to propagate indigenous trees; the farmers have observed how the trees grow and from which parts of trees they can best be propagated. The meetings also function to site the village woodlots, to determine which species are to be planted in them and to plan who is to be involved in the planting and management of communal trees.

The project has highlighted that dialogue with villagers in an open-ended, unthreatening way reveals a range of priorities for tree planting that was not catered for in the single-species, eucalyptus woodlot approach previously advocated. However, it is in the context of communal woodland management and enrichment planting that the project has faced most difficulties. This involves, in particular, the contestations within local communities, and between local groups and outsiders who bring projects and interventions.

Institutional politics and development

The project experience provides a good example of how political definitions of society are being appropriated by the development strategy of NGOs and development agents. The village development committee (VIDCO) is the basic unit of development in Zimbabwe. The history of the VIDCOs goes back to 1984 when they were imposed on the people by the government. Very few people in the project area know about their functions and mandate. They have surfaced as a counter to the traditional lineage heads (*sabhuku*), some of whom are regarded as legitimate leaders in the project area. The VIDCO boundaries often do not have any relevance to the socioeconomic dimensions of the communities and so bear little relation to resource management terrains. In most cases the VIDCO boundaries have ignored the cultural and social boundaries, splitting families and ignoring traditional grazing areas. Yet most government and NGO workers have been forced to work within the structures set by the state. Operating at VIDCO level is another example of how society has

been abstracted by the authorities, leaving, in many instances, a local institution unable to effect resource management. The effects of demarcating areas and imposing institutions on people have contributed to some of the problems faced by the project.

Most of the woodlots planted by the VIDCOs have not been successful. In part, this has been because of the recurrent droughts in the area and their impact on tree survival and growth. Perhaps more importantly it has been an issue of ownership: who owns the trees? Who has the legitimacy to control and manage development in the area? Local power struggles have been played out in the project setting, with VIDCOs competing with traditional leaders.

There has been one addition to this set of actors – ENDA and the project team. Perceived as an external, Harare-based organization with all the trappings of development aid (short visits by senior staff in land cruisers, etc.), the role of ENDA has sometimes been key. In some cases, local disputes have been such that people comment that it is simply 'ENDA's project' or 'the woodlot belongs to the government'; a reflection of the long history of state imposition of development projects in the communal areas, from the colonial era to the present. One comment by a farmer is typical of such situations: 'They wanted to come and plant trees in government plots simply to show us that we are their people. After planting, rules and rules will come and in the end termites will eat all the trees.'

In other areas some aspects of the project were completely rejected. In the case of Madzoke VIDCO the local leadership refused to plant any trees on their land, as there were plenty of remaining indigenous trees. The people relied on their knowledge of their area and refused any imposition. A number of fruit trees and exotics were, however, planted. In one way, this can be viewed as a success from the project's point of view: participation entails the right of farmers to say no!

In other cases, however, community workers have been able to negotiate their way through local conflict and the project has become 'owned' by local groups, with a diversity of woodland management and tree planting activities being carried out. The importance of mediation and brokerage by local extension workers in the context of highly contested, politically charged and disputed resource management options is highlighted by his experience.

Rural peoples' knowledge and extension institutions

The strategies employed by the project envisage a new dimension to the planning of resource use and conservation. What is central to this approach is the realization that local people need to be consulted when planning resource use. The experience shows that there is a need to rely on local people's knowledge and perceptions, and to recognize that this knowledge is situated within a political, social and religious context. Intervention thus must exist as part of an ongoing negotiation with local people.

Locally based extension teams are key to the success of this negotiation. In the Chivi-Zvishavane project, the local extension team was made up of

farmers who shared the same problems, experiences, knowledge and hardships with the other members of the communities in which they worked. They never had the chance to be regarded as top bosses (*mashefu*). Conflicts were largely resolved amicably, using the local channels of power and authority and processes of mediation and arbitration.

Open communication and dialogue is vital to success; especially the 'lateral' communication that occurs between the community and the local extension worker. In the ENDA project, the collection of lists of preferred species, raising them in the nurseries and taking them back to farmers has had a double function:

- It demonstrated to farmers that the knowledge they have is valuable;
- It demonstrated that the poorly regarded indigenous trees can be propagated just as well as exotic ones.

Awareness and confidence have grown – both are critical ingredients of a participatory process. Discussion fora and regular feedback interviews carried out by the community workers encouraged a level of local-level dialogue that moved the project beyond a static approach, to a process of continuous communication and interaction.

However, there have been problems. One important one was the conflict between the administrative division of VIDCOs and resource management centred on woodlots, mentioned above. Other problems centred on the interface between project staff and local farmers. As already noted, extension workers were already members of their community. This had major benefits for engendering dialogue and negotiating conflicts arising from the project process. However, the very existence of a 'project', an outside-funded intervention, introduced certain dilemmas. This fact clearly changed the status of community workers: they were now at the same time community members and project workers. Their insider status became blurred and confused by their employment in the project. Their consequent boost in income and their access to transport (as well as the range of assumed, but often non-existent, benefits) sometimes prejudiced their role. This was exacerbated by a centrally directed management structure and a sometimes arrogant approach of Harare-based staff.

Conclusion

The rhetoric of 'people's participation' may be seductive to donors and appealing to NGOs and government agencies based in the capital city, but if promoted by a hierarchically structured and centrally managed organization, effective devolution, local empowerment and village-level resource management may well be elusive. Since local resource management decisions are made in the context of local political and institutional structures, recognizing this dimension of RPK is key.

This view suggests a new role for extensionists. They must become managers of encounters, resolvers of conflicts, consultants on 'formal' knowledges. This requires new settings for extension work and new forms of training, emphasizing interactive communication and negotiation and

conflict-resolution skills, rather than simply the imparting of technical knowledge. Above all, the style of intervention must shift from one prescribing blueprints (even if 'participatory' in rhetorical design) to one of open learning (Korten, 1980). This will inevitably require new institutional procedures and new professional norms (Pretty and Chambers, Part III).

Declarations of difference

JAMES FAIRHEAD and MELISSA LEACH

Introduction

The determination of 'who knows' – the declaration of differences in knowledge by gender, ethnicity, age etc. – is integral to the sociopolitical processes conditioning access to and control over resources. This applies equally to the relationships between farmers and researchers as to the relationships between farmers themselves.

This paper investigates certain parallels between the analytical isolation of bits of knowledge (for example of particular micro-environments, of the use of particular tree species, or of how to perform a certain task) and the analytical isolation of 'bits of society'. Analysis often links such knowledge and social bits in a 'who knows what' approach, reading a knowledge difference into different people's involvement with different micro-environments, species, activities and so on and identifying certain social groups as proprietors of certain types of knowledge. This focus risks overlooking both broadly held understandings of agroecological processes and the sociopolitical processes which define and maintain differences of practice. It also risks isolating social groups at the expense of understanding social relations. Thus, when targeted R&E (Research and Extension) strategies derived from a 'who knows what' approach attempt to interlock with these understandings and processes in rural communities they will often miss. Examples from our research in Guinea's forest region show that isolating local knowledges may well support the reinforcement or re-negotiation of patterns of resource access and control to the benefit or detriment of certain people.

Isolating knowledges

Analyses following a 'who knows what' approach differentiate the 'what' – the knowledge – along a variety of axes. Firstly, local knowledge is often examined in relation to scientific disciplinary distinctions and preoccupations, producing a mirrored set of ethno-disciplines: ethno-botany, ethno-veterinary medicine, indigenous agroforestry and so on. These construct certain aspects of RPK as relevant and important, whilst excluding others as irrelevant, according to the selective concerns of their mirrored sciences, rather than the concerns of farmers.

Acknowledging process: methodological challenges for agricultural research and extension

ANDREA CORNWALL, IRENE GUIJT and ALICE WELBOURN

Changing theory, changing methodology?

Over the last decades, pragmatic and ethical concerns about the inadequacies of conventional approaches to agricultural research and extension in Asia, Africa and Latin America have fuelled the development of alternative, more participatory methodologies. Yet there is continued neglect of the social processes that take place during and following the use of these methodologies, and of the experiential, practical and political elements.

New practices have challenged the theory of agricultural development, and in turn have been challenged by theoretical shifts (Scoones and Thompson, Part I). Farmers, researchers and extensionists must be recognized as social actors within the social practice of agricultural production.

After clarifying the role of methodology in agricultural research and extension, we review challenges to mainstream thinking in agricultural development. Through a critical examination of alternative participatory methodologies, drawing on experiences from community development, we explore ways in which new practices can enrich agricultural research and extension.

Methods and methodologies

Method and methodology are often, erroneously, used as synonyms. Methods are the nuts and bolts, or mechanics, of data collection and information exchange; methodologies shape and inform the processes of research and extension. Methodologies provide the user with a framework for selecting the means to find out about, analyse, order and exchange information about an issue. They define *what* can be known or exchanged, *how* that should be represented and by and for *whom* this is done.

The ways in which we conceptualize research problems define potential outcomes, and how we choose to reach these. The process of research or extension often focuses only on these outcomes: the production or transfer of 'facts'. Methodologies are seen as a neutral means to that end. Yet methodological strategies involve more than selecting appropriate methods. Experiments, surveys, diagramming techniques or interviews can be used differently by each actor, which may result in divergent and sometimes conflicting information. Only part of these differences can be explained from the kinds of information the methods generate. The choices which are made during the application of the methodologies stem from personal experiences, beliefs and assumptions. These aspects often go unquestioned and unacknowledged, yet influence both the procedures and outcomes of research or extension.

Traditionally, science sets certain parameters within which interpretation takes place and favours the use of particular methodologies for specific

purposes. The choice of a methodology is, however, not determined solely by its perceived scientific relevance. Institutional concerns include time or financial constraints, or conditionality of donors. More personal criteria also play a role, such as habit, fear of not being respected and imposition by superiors. The choice of a methodology is, as Hesse (1978) suggests, a decision which is both personal and political. Recognizing this enables us to look more closely at the consequences of the conscious or unconscious methodological choices we make.

Challenging constraining conventions

Conventional approaches to agricultural research and extension are based on several common assumptions, which limit their ability to deal with complex and changing realities. The linear sequence of events assumes stability, and neglects local experiences of nature and previous interventions. Those in the higher ranks define what is worth knowing and use others to transfer this to those who lack it. The generation of knowledge is separated from its use in decision making and implementation (Korten, 1980).

Conventional experimental design reduces the complex dynamics of farming to technical procedures. Within surveys, used to determine socio-economic production constraints, the views of some farmers are solicited and assumed to represent everyone. Information is aggregated and analysed using variables determined to be relevant by researchers. Recommendations are passed to planners who set objectives which are insensitive to the contexts in which they are to be realised.

While conventional research and extension can contribute substantially to agricultural development, even the most well-intentioned scientists and extension workers, using the best conventional methods available, may still produce and pass on totally inappropriate recommendations (Moris, 1991). Many of the limitations of these approaches result from their perspective of agriculture as a technical activity rather than as social praxis.

Over the last decades, some of the fundamental assumptions made by agricultural researchers and extension workers working in Africa, Asia and Latin America have been shaken. Farmers have been proven to be knowledgeable about their farming systems and capable of conducting trials and experiments (e.g. Millar; Richards; Stolzenbach; Winarto, Part II). Research has shown that:

- Farmers continuously conduct their own trials, partially adopt and adapt technologies to their specific circumstances and spread innovations through their networks;
- There are significant differences between the procedures of farmers' and research station experiments and their criteria for assessment;
- Farmer experimentation is quicker and more able to accommodate changing circumstances and diversity than those of research scientists;
- Farmers' own analysis of farming systems offers important insights, different from that of scientists.

Most methodologies do not explore fully the *processes* of knowing about and doing farming. Erroneous parallels between farming practice and scientific procedure continue to be drawn. Van der Ploeg notes that 'local methods fall outside the scope of scientific design', and therefore so do farmers 'as active and knowledgeable actors, capable of improving their own conditions' (1989: 157).

Conceptualizing agriculture as a largely technical activity obscures the social, cultural, personal and political dimensions both of rural farming practice and western agricultural science. Agricultural production is determined not only by environmental conditions and technological inputs, but also by the opportunities available to different actors. In a single situation, these may be distinctly different for female and male farmers of different ages and social groups. Yet social complexity is masked by a focus on simplistic units of analysis such as 'the household' and distinctions drawn between, for example, 'progressive' and 'conservative' farmers.

Each actor in agricultural development operates within relations of power which determine her/his ability to respond to and initiate agricultural change. Long and van der Ploeg (1989: 228) argue that:

> . . . conceptualizing intervention as a discrete and clearly localized activity (i.e., as a 'project') obscures the theoretically important point that intervention is never a 'project' with sharp boundaries in space and time . . . Interventions are always part of the chain or flow of events located within the broader framework of the activities of the state and the activities of different interest groups operative in civil society.

Methodological issues

Conventional agricultural research and extension is based on the production and exchange of knowledge. It is carried out for a particular purpose by people who make methodological choices and define knowledge and its use. To understand how these considerations affect the process and outcome of agricultural research and extension, certain questions must be addressed. What form is knowledge allowed to take – and who decides? Who interacts in agricultural development? Whose knowledge counts? Knowledge for what? And knowledge for whom?

Knowledge is often treated methodologically as if it could be amassed or distributed, found, built on or lost. Yet knowledge is not some*thing* which can be discovered – it is produced through the interactions of people in particular situations, and methodologies provide the means to produce it. Interpretation of these processes into 'data' or 'recommendations' always involve changes – from observations or dialogues into numbers or monologues, from terms lodged in one conceptual framework into another. 'Findings' appear neutral and authoritative, and are cut loose from contexts and interactions. The claim of western scientific objectivity implies that the researcher or extension worker simple conveys, rather than interprets, information. By trying to control 'unwanted' variation or minimize the 'outsider effect', the part people play in constructing versions of reality is denied. People interpret, rather than just describe, these interactions and

their outcomes according to their own assumptions and priorities (Uphoff, 1992).

Most methodologies can only deal with knowledge which takes the form of statements. Conventional interviewing techniques require that people convey what they know verbally to the questioner who has set the frame of reference for the answer. Statements are often translated literally, assuming equivalence between the concepts used and masking the use of metaphor (Pottier; Salas, Part I). Farmers' observations may seem to make no sense at all (van der Ploeg, 1989), as they do not fit the world described by researchers and extension workers. Only recognisable elements are included and reshaped. Others are discarded. Yet much of what is known simply cannot be stated: 'they can be represented – and made present – only through action, enactment and performance' (Fabian, 1990: 6).

Methodologies include decisions about who asks questions or delivers recommendations at the 'interface' (Long, 1989). Statements are not made in a vacuum, they are made to people. What is said depends on how the question is phrased, how it is asked and by whom. Sometimes rural people respond with idealized versions or repeat what they have heard from extension workers. They may provide information that they feel is expected, reveal what least damages their interests, or respond to what they think external organizations may have on offer. How rural people react is also influenced by 'collective and individual memories' (Long and van der Ploeg, 1989) of interventions. As their 'hidden transcripts' (Scott, 1990) may vary considerably from the official versions they communicate, they can easily be interpreted as conservative or ignorant by researchers and extension workers.

The question 'whose knowledge counts?' reveals how certain kinds of knowledge turn others into ignorance (Vitebsky, 1993). Conventional research and extension aims to produce and convey recommendations to remedy the absence of knowledge about certain processes, and therefore makes assumptions about whose knowledge is important. The process assumes that farmers are ignorant about certain elements of their practice and, therefore, renders their knowledge invisible. For example, defining rural people's knowledge as 'indigenous *technical* knowledge' obscures its social and cultural dimensions. Researchers seek those who are presumed to know *most*, so-called 'key informants', thereby choosing their versions over others. The contributions of others – often women or children – are often not solicited. That they may have *different* rather than *less* knowledge is rarely acknowledged.

With local agricultural knowledge increasingly in the spotlight, simplistic assumptions are made about what counts as 'local'. Yet, many sources of rural people's knowledge stem from outside their immediate environment. The social networks to which they belong interact in many domains, creating complex 'knowledge chains' (Box, 1987) about issues and innovations. Labelling teachers, extension workers, visitors from town, and relatives from elsewhere as 'insiders' or 'outsiders' simplifies a more complex relationship between them. People may be 'outsiders' *and/or* 'insiders' according to their activity or purpose. The difference between them may be one of degree, rather than kind.

Asking 'knowledge for what?', raises questions about the kind of knowledge which is needed and by whom. Do researchers actually need to know all that they seek? Why? Should only researchers be given the responsibility for producing knowledge or recommendations? What goal is the transfer of knowledge aiming to reach? As Korten (1980) notes, conventional agricultural development assumes that knowledge can be generated independently of the organizational capacity needed for it to be put into practice. What counts as knowledge within research may be entirely inappropriate for action. Knowledge is not necessarily generated in line with the needs of the different constituencies of farmers; organizations have their own agendas which set the terms for interventions. These personal, professional and institutional interests cannot be separated from the choices of methodology which are made.

Finally, the question 'knowledge for whom?' places the quest for understanding firmly in the political and personal arena. Conventional approaches generally regard local people as passive recipients, whose 'needs' are defined for them, according to the agendas of their developers. Chambers (1992a) contends:

> 'Outsiders' have been conditioned to believe and assume that villagers are ignorant and have either lectured at them, holding sticks and waving fingers, or have interviewed them, asking rapid questions, interrupting and not listening beyond immediate replies . . . The apparent ignorance of rural people is then an artificial product of 'outsiders' ignorance of how to enable them to express, share and extend their knowledge. The attitudes and behaviour needed for rapport are missing.

Working with people or facilitating them to work with each other requires a shift in perspective. The methodological challenge is not necessarily that of how researchers can produce more or better knowledge, and how extension workers can transfer it to local people. Chambers (1992b) argues:

> The idea is not to improve our analysis, or even our learning, but their [local people's] analysis and their learning . . . it has been revealed again and again that they can do what only we thought we could do, and often that they can do it better.

The emphasis in methodological development must shift from expanding the repertoire of methods to acknowledging the political aspects of methodological choices and the learning experience that those involved in agricultural research and extension undergo. Participatory approaches try to overcome some of the limitations of mainstream agricultural research and extension, by addressing some of these concerns.

'Participation': rhetoric or revolution?

'Participation' has become a familiar part of the rhetoric of institutions ranging from the smallest NGO to the World Bank. The adoption of participation as a guiding concept has been driven by both ideology and pragmatism (Farrington and Bebbington, Part III). Many institutions with

explicit aims to reach the 'poorest of the poor' focus on methodologies consistent with their ideology, involving the intended beneficiaries in the process. Participation has also been recognized to contribute to more effective and sustainable impact of the work done. As a result there has been an immense surge in the conditionality of participation attached to much agricultural research and extension. Appearances may deceive, as Cernea (1991) warns:

> We hear sudden declaration of fashionable support for participatory approaches . . . social scientists should not confuse these statements with actual participatory planning, because under the cloud of cosmetic rhetoric, technocratic planning continues to rule.

'Participation' is easily woven mechanistically into the process of linear development. Although the style of interaction might change, the principles upon which much participatory research and extension are based remain unchanged. Often the actors involved are neither convinced by the pragmatic arguments, nor politically committed to devolving power to local people.

There are myriad interpretations of participation. It has been differentiated according to distinct stages of agricultural research and extension (Farrington and Martin, 1988), while others classify the kind of interactions which take place. Biggs (1989a) distinguishes four types of farmer participation: contractual, consultative, collaborative, and collegiate. Farrington, *et al.* (1993) expand on Biggs' typology which they identify as 'depth of interaction' running from shallow to deep, by discerning scope of interaction, which ranges from narrow to wide. They highlight organizational issues, arguing that deeper levels of participation tend to rely more on group than individual approaches.

The methodologies listed in Box 1 contain the germs of a revolution in agricultural development. Despite the rhetoric of some approaches, they have brought significant innovations and challenges to the mainstream. Often heralded as 'new' directions, these approaches have a half-forgotten history in community development initiatives spanning the last four decades (Holdcroft, 1978, cited in Korten, 1980). Many draw on methods developed in community development for empowerment, yet only a few acknowledge or respond to the challenges of a 'deep and wide' participatory process.

In many of these approaches, rural people's participation is limited to providing information to researchers, who do the analysis and generate solutions for farmers. In several (e.g. BA, FSR, D&D, AEA, RRA) external agents remain in control of which form information takes. Others (e.g. PAR, PRA, DELTA, Theatre for Development) aim to enable rural people to explore their own visions and solutions, through forms they themselves generate. These 'new methodologies' have important contributions to make to agricultural research and extension, yet raise a number of institutional challenges and dilemmas (Farrington and Bebbington; Pretty and Chambers, Part III).

In the following sections, we review the innovations and shortcomings of six approaches: FSR/E, FPR, PRA, PAR, DELTA and Theatre for Development. Each approach allocates specific roles to extension workers

Box 1: Some participatory approaches of the 1980s–90s (in alphabetical order)	
AEA	Agroecosystem Analysis
BA	Beneficiary Assessment
DELTA	Development Education Leadership Teams
D&D	Diagnosis and Design
DRP	Diagnostico Rural Participativo
FPR	Farmer Participatory Research
FSR/E	Farming Systems Research/Extension
GRAAP	Groupe de recherche et d'appui pour l'auto-promotion paysanne
MARP	Méthode Accéléré de Recherche Participative
PALM	Participatory Analysis and Learning Methods
PAR	Participatory Action Research
PD	Process Documentation
PRA	Participatory Rural Appraisal
PRAP	Participatory Rural Appraisal and Planning
PRM	Participatory Research Methods
PTD	Participatory Technology Development
RA	Rapid Appraisal
RAAKS	Rapid Assessment of Agricultural Knowledge Systems
RAP	Rapid Assessment Procedures
RAT	Rapid Assessment Techniques
RCA	Rapid Catchment Analysis
REA	Rapid Ethnographic Assessment
RFSA	Rapid Food Security Assessment
RMA	Rapid Multi-perspective Appraisal
ROA	Rapid Organizational Assessment
RRA	Rapid Rural Appraisal
SB	Samuhik Brahman (Joint trek)
TFD	Theatre for Development
TFT	Training for Transformation

and/or researchers. The challenge for the future is to draw from this array of innovation to create new syntheses.

Farming systems research-extension

Farming Systems Research-Extension (FSR/E) emerged in the late 1970s in reaction to the prevailing transfer-of-technology model. It recognised that constraints at the farm level limited the adoption of new technologies coming from outside the system (Gartner, 1990). Advocates of the FSR/E approach, initially mainly agricultural economists, argued that research should be determined by explicitly identified farmers' needs, rather than according to the preconceptions of researchers. Accordingly, applied agricultural research was relocated from the stations to the farm (Gilbert *et*

al., 1980; Collinson 1981; Shaner *et al.*, 1982). Researchers and extensionists were encouraged to work with farmers to design, test and modify improved agricultural technologies to suit local conditions.

Although FSR/E has developed in many different directions, making generalization difficult, there are three common key principles:

- Joint effort by researchers, extensionists and farmers to design, test and modify improved agricultural technologies appropriate for local conditions;
- Agriculture is seen as an holistic system in which all important interactions that affect its performance should be considered;
- A multi-disciplinary perspective to problem analysis, technology design, trial implementation and evaluation.

In practice, FSR/E activities include basic (laboratory) research, research station trials, on-farm trials and extension and production programmes. Most work is done through on-farm and multi-location trials, under farm conditions, to learn about farmers' constraints. The results are then communicated to experiment stations, usually by researchers or extension workers.

FSR/E's contribution is most obvious in an historical perspective as it signified a move away from a crop-only fixation (although this remains a favourite focus of activities) towards an appreciation of the complexity of agricultural systems and decision-making. FSR/E provided the means for making decisions about cost-effective on-farm and on-station measures.

However, it is based on assumptions derived from a positivist approach to agricultural systems, aiming to optimise them through interventions by the 'expert technologist' or 'management consultant' (Bawden, 1992b). Most FSR/E scientists continue to investigate for or sometimes even on their farmer 'clients', rather than with them. Reliant on conventional natural and social scientific research methods, FSR/E remains largely insensitive to farmers' knowledge, and the flow of knowledge is generally in the researcher-back-to-researcher mode.

Farmer participatory research

Farmer Participatory Research (FPR) developed in the 1980s to involve farmers more closely in on-farm research, moving beyond FSR/E's contracting or consulting farmers. It views the context of agricultural production as interactions between on- and off-farm resource management strategies. Recognition of what came to be termed 'indigenous technical knowledge' (ITK) led to a focus on the farmer as innovator and as experimenter, and more interest in 'collaborative' and 'collegiate' relations between researchers and farmers (Biggs, 1980; Richards, 1985; Farrington, 1988; Farrington and Martin, 1988; Amanor, 1990; Hiemstra *et al.*, 1992). Advocates of this shift called the new approach farmer-first (Chambers *et al.*, 1989), and pronouncing the farmer as 'rational' and 'right' (Gupta, 1989).

Despite these innovations, FPR researchers explored the concepts and procedures used by farmers in their experiments, usually applying the positivist assumptions of technical science to ITK and disregarding its social

and cultural aspects. A single rationality, modelled on that of western logic, was presupposed and other 'ways of reasoning' (Hacking, 1983) were not considered. Issues of diversity and difference among farmers were virtually disregarded. Recent agricultural anthropological work on farmers' knowledge (Fairhead, 1990, 1993; van der Ploeg 1993; Salas, Part I) has raised three key methodological challenges.

First, do farmers and research scientists share the same notion of what constitutes an experiment or an innovation? Van der Ploeg (1989) argues that they do not. If, as Richards (1989) suggests, agricultural production resembles a 'performance' of complex, situation-specific adjustments, rather than a planned sequence of events, the boundary between 'experiment' and 'normal procedures' becomes blurred. This raises the question of whether farmers regard changes in practice as 'innovations' at all (Fairhead, 1990).

A second set of difficulties arises when considering the basis for such a partnership. Fairhead (1993) anticipates the problems which might be faced in establishing a basis for collegiate dialogue either between researchers and farmers, or between farmers themselves:

> The catch is that local knowledge is good precisely because it is hypothetical and relatively unformulated, and yet precisely for this reason it is almost impossible to access.

If, as van der Ploeg (1989) contends, farmer's understandings of agricultural processes are a complex of personal, metaphorical and contextual knowledge which becomes almost impenetrable when subjected to scientific scrutiny, then reaching a common understanding may be extremely difficult. This draws attention to intimate linkages between cosmological beliefs and processes of agricultural experimentation and innovation (Salas, Part I). Such associations create difficulties for collegiate relationships with rationalist scientists and extension workers.

A third challenge for research and extension which is based on facilitating dialogue and mutual learning is the issue of power and control over knowledge. Fairhead (1990) observes that in Kivu, Zaire, it may be precisely those innovations that are most new and exciting that are least likely to be shared outside the private domain. Farmers' knowledge cannot simply be aggregated as if it were the 'property' of farmers in general: *making* an innovation common property has social and political consequences (Pottier, Part I).

These methodological challenges reveal the paradox of productive collaboration. While each party needs to develop an understanding and appreciation of the others' methodological approach (Millar, Part II; Salas, Part I), this may in itself preclude the possibility of certain kinds of collaboration. What, then, are the prospects for collaboration? Three kinds of approach can be identified.

In the first, conventional agricultural science remains central, either by disseminating simple experimental techniques to farmers (Bunch, 1985, 1987; Lightfoot, *et al*, 1988; Gubbels, 1990) or making on-farm trials more amenable to statistical analysis, thus enhancing research station replicability (Box, 1987). The emphasis is on changing methods of work, rather than methodologies.

Richards (Part II) suggests a second option: to identify those farmers who work along positivist lines and to work with them to enhance their capacity. This makes explicit that which is implicit in much of FPR work, but the implications of such an approach remain problematic. Among them is the prospect that only those farmers conducting experiments in ways compatible with western science would be research partners.

The third approach aims to change the roles of and relationships between researchers, extensionists and farmers towards a process of collaboration based on mutual learning as colleagues with different contributions to make (Chambers, 1993). It gives farmers an array of choices, allows them to suggest criteria for technological development and select elements of packages to adapt and adopt (Rhoades, 1983; Bunch, 1989), and facilitate processes through which they can analyse and implement their own solutions.

The second and third approaches partially overlap. Both provide radical alternatives to conventional research and extension. They place farmers at the centre of activities, focusing on facilitating exchange between farmers and enhancing their organizational capacity to diagnose and solve problems themselves. Over the last few years, several possible strategies have developed, including:

- Farmer-back-to-farmer (Rhoades and Booth, 1982; Rhoades, 1983);
- Village research groups (Drinkwater, Part II; Sikana, Part III);
- Farmer experimenter networks (Box, 1987);
- Farmer groups (Norman *et al.*, 1989; Ashby *et al.*, 1989).

Questions may arise where groups need to be formed, requiring a sensitivity to local political and social dynamics which is often lacking. Without the skills to facilitate these encounters, the divisions and conflicts of interest which support the status quo may merely be reinforced. It may also restrict the participation to those farmers who present themselves as suitable candidates: female farmers may well be excluded from such initiatives. Finally, it raises questions about what agricultural science could hope to contribute to such an independent process.

FPR will need to seek ways to channel institutional and scientific resources more effectively in directions the farmers themselves take part in determining (Pretty and Chambers, Part III). Without an appreciation of contextual issues, however, such initiatives may flounder. It is particularly important that issues of difference, power and control in rural communities are better understood before research and extension is conducted. This can help to view the 'farmer' as a social actor who interacts in many spheres, rather than someone whose life revolves solely around agricultural production.

Rapid rural appraisal and participatory rural appraisal

While FSRE and FPR retain agriculture as pivotal, another approach developed which located agriculture as one among other elements of people's

livelihoods. Growing dissatisfaction with two common approaches to development research, 'rural development tourism' and 'survey slavery' (Chambers, 1983), led to the emergence of Rapid Rural Appraisal (RRA) in the late 1970s (Carruthers and Chambers, 1981; Khon Kaen University, 1987).

RRA stresses cost-effective trade-offs between the quantity, accuracy, relevance and timeliness of information. It combines a range of methods for rapid and cumulative data collection. Other key features include: multidisciplinarity, a semi-structured and flexible sequence that is regularly reviewed and refined, and exploring local categories, classifications and perceptions. Initially, RRA teams of researchers and planners gathered, represented and analysed the information. Farmers generated data and discussed the researchers' findings, but were excluded from any analysis.

By the late 1980s, users of RRA had been inspired by agroecosystem analysis (Gypmantasiri *et al.*, 1980; Conway, 1985, 1987), applied anthropology (Brokensha *et al.*, 1980; Rhoades, 1982, 1990), participatory action research (Rahman, 1984; Gaventa and Lewis, 1991) and FSR/FPR (Ashby, 1990). The focus shifted from the rapid collection of data by researchers and planners to facilitating farmers to generate, represent and analyse their own data (IIED, 1988–1994; Mascarenhas *et al.*, 1991).

This implied a reversal of roles for farmers and development workers, and methods developed to help change the behaviour and attitudes of 'outsiders'. A new label emerged: *Participatory* Rural Appraisal. Advocates of this approach argue that the production of knowledge and the generation of potential solutions should be carried out by those whose livelihood strategies formed the subject for research. PRA combines research with action, offering opportunities for mobilizing local people for joint action (Devavaram *et al.*, 1991; Mascarenhas *et al.*, 1991).

RRA and PRA make use of a rich menu of visualization, interviewing and group work methods (Box 2), of which visualization has proven particularly innovative within agricultural development. Rather than answering a stream of questions directed by the values of the researcher, local people represent their ideas in a form they can discuss, modify and extend. They become creative analysts and performers, rather than reactive respondents (Chambers, 1992a). Seasonal calendars help to understand the many dimensions of seasonal welfare (Chambers, 1993), and highlight the dynamics of rural livelihoods. Ranking and scoring exercises draw out some of the complexities involved in decision-making, which are rarely accessible through formal surveys and which enable researchers to appreciate farmers' differing needs and preferences. Methods such as crop biographies, network and pathway diagramming (FARM-Africa/IIED, 1991) and systems diagramming (Guijt and Pretty, 1992; Lightfoot *et al.*, 1992) have developed.

However, visualization is not a neutral medium and retains translation problems. Visual versions are presented to and interpreted by the viewer. They facilitate further discussion, but do not replace dialogue. The paradox of participation becomes clear where large groups form to create diagrams. While ostensibly encouraging a wider participation, the size of the group

Box 2: Methods used in Participatory Rural Appraisal

Visualized Analyses	Interviewing	Group and Team Dynamics
• Participatory mapping and modelling • Aerial photograph analyses • Seasonal calendars • Daily and activity profiles • Historical profiles and trend analyses • Timelines and chronologies • Matrix scoring • Preference ranking • Venn and network diagramming • Systems and flow diagrams • Pie diagrams	• Semi-structured interviewing • Transect and group walks • Wealth ranking • Focus group interviews • Key informant interviews • Ethnohistories • Futures possible	• Team contracts • Buzz sessions and reviews • Rapid report writing • Do-it-yourself (taking part in local activities) • Villager and shared presentations • Self-corrected notes and diaries

influences the process. As with verbal communication, local people filter what they choose to present, including their expectations of what the agricultural development worker can offer (Jonfa *et al.*, 1992).

The apparent ease with which information can be gathered using P/RRA methods belies the more complex political and social context in which such interactions take place. There is sometimes a naive assumption that if the external agent behaves appropriately and hands over control, then they will not bias the information. External agents are often, and rightly, assumed to have access to resources of some kind or even to represent threats (Mosse, 1992). In turn, external agents often regard farmers as willing discussion partners who provide the truth. They have their own agendas, and encounters are set within relations of power. Only few cases have addressed local power dynamics and conflict (Conway *et al.*, 1989; Poffenberger *et al.*, 1992).

RRA and PRA offer a creative approach to information sharing and a challenge to prevailing biases and preconceptions about rural people's knowledge. PRA further recognizes that, besides producing timely and relevant knowledge, rural people should have control over its use. However, the methods can easily be applied mechanistically within any framework and for any agenda, and PRA is rapidly becoming a fashionable label for short-cut research. Adopting PRA is, as Chambers (1992a) urges, not only about facilitating 'participation', but also about changing the approach of development agencies at their core, which has been one step too far for many.

Participatory action research (PAR)

Participatory Action Research developed during the 1970s and draws together both the personal and the political. It recognizes the marginalization caused by 'universal science' and its creation of ignorance, and challenges relations of inequality by restoring oppressed people's self-respect and voice. Its aims are, therefore, explicitly political, as PAR focuses on the experiences of poor and exploited groups. PAR seeks to disrupt the hegemony of western science and official histories in which the contribution of ordinary people plays no part. The versions of knowledge they create, 'people's science', are used to confront forces of domination.

'Participation' in PAR means breaking out of relations of dependency to restore to people their ability to transform their worlds (Freire, 1972). Local people are involved at all stages in research. Rather than being the objects of research, they produce and own their own information. In theory, in this process the initial agents of change 'become redundant . . . the transformation process continues without the physical presence of external agents, animators and cadres' (Fals-Borda and Rahman, 1991).

Practitioners of PAR stress the importance of recovering people's own histories in the process of collective confidence-building. The methods used in PAR include:

- Collective research – meetings, socio-dramas, public assemblies;
- Recovery of history – through collective memory, interviews, witness accounts, family coffers;
- Valuing and applying 'folk culture' – through the arts, sports and other forms of expression;
- Production and diffusion of new knowledges through written, oral and visual forms.

The principles of PAR have inspired recent developments within PRA. Yet in its direct concern with the politics of inequality it is often perceived as deeply threatening to established interests: both those within communities and of the development agencies. Its goal of societal transformation is a long-term 'project' for which the personal and political commitment of the external agents is vital. It requires the researchers or extension workers acting as agents of change to be above all skilful communicators and leaders, willing and able to hand over total control of the change process.

DELTA (Development Education and Leadership Teams in Action)

DELTA developed in the mid-1970s in Kenya and is much used in grassroots community work in East Africa. It offers dynamic, process-oriented ways of identifying and responding to local concerns by emphasising long-term commitment and building confidence and trust.

The approach brings together Freire's (1972) work on critical awareness and conscientisation, human relations training in group work (Hope *et al.*, 1984), organizational development, social analysis, and ideas from Liberation Theology. These sources are depicted as flowing together into a river of DELTA training that, in turn, forms a delta of sectorally-divided issues

(literacy, agriculture, health, management, family and social problems). Facilitators conduct 'listening surveys' in communities and prepare 'codes', such as pictures or songs, which reflect local problems. Each code is then discussed and processed in an open meeting. An 'action plan' forms the follow-up, which aims to address the causes of the problem.

The DELTA approach places people's experiences of their problems at the core of research and extension. Rather than prescribe or project solutions, DELTA agents facilitate local level reflection and action. By building confidence and providing an opportunity for the participation of marginalized groups, DELTA brings more people into the process of local self-development.

However, DELTA agents determine the process they initiate, as they provide the codes for discussions. The facilitator becomes the lynch pin whose own agenda can define the process. Resting, as it does, on a notion of 'the community' and on reaching a consensus, this approach may fail to confront the relations of power which establish hierarchies of interests and agendas within the community. This is particularly problematic where the Christian message of DELTA may marginalize or exclude those who do not share these beliefs.

Theatre for development

Performance arts, such as theatre, song, dance and puppetry are used in extension in many parts of the world. In some places, performance provides a means to convey prescriptive messages within a top-down approach to extension. Harding (1987) clearly distinguishes theatre *in* development from theatre *for* development. The former is created and performed by external agents to offer their recommendations and solutions. The latter 'aims to make the processes of drama-building accessible to people who can in turn use it as part of their access to development' (Harding, 1987: 332).

Augusto Boal, whose work forms one of the major influences on Theatre for Development, contends: 'Theatre is a weapon and it is the people who should wield it' (1979: 22). By inviting people to intervene in dramatized scenarios of their everyday lives, Boal's method encourages them to create their own solutions. Acting out becomes a rehearsal for action.

In common with DELTA agents, Theatre for Development practitioners use the 'listening survey' and 'codes', in the form of open-ended problem-posing sketches. As they perform in public places, spectators are drawn into the performance to act out their versions and experiment with possible solutions. In contrast with DELTA, creative conflict, rather than consensus guides, the process of action and reflection. Practitioners recognize the inherently conflictual nature of community relations, seeking to build the awareness to confront or expose the relations of power which sustain inequalities (Abah and Okwerri, pers. comm.).

Theatre for Development techniques have been used in several development settings to raise awareness and mobilize, as well as to monitor and evaluate projects (Cornwall *et al.*, 1989; Mavro, 1991). The principal

strength of this technique lies in its emphasis on a performative approach to research and extension, and on the power of theatre as a mobilizing and enabling force for change. As such, Theatre for Development offers complementary methodological strategies to discussion and diagramming.

Creating new directions for agricultural research and extension

Due to its orientation towards technical and economic problem-solving, conventional agricultural research and extension often reduces situations and masks the complexities of rural life. The participatory approaches reviewed above aim, in different ways, to restore some of these complexities. By recognising that 'participation' involves more than consultation, rural people are increasingly becoming actors, rather than instruments in the development process. This is reflected in changing roles for extension workers and researchers.

While striving to improve mainstream approaches and theorizing about the ideal, it is essential to recognize and accept certain constraints. Communication, on which agricultural research and extension hinges, is far from straightforward. We can never step outside our own ways of reasoning or the confines of our language (Hacking, 1983). Communicating what is known and showing what is done involves interpreting others' intentions using our own. Other methods, such as performances or visualizations, will not lay bare what people know, but do provide further opportunities for interpretation.

There is a danger, too, of drowning in pluralities. If many different versions of knowledge are produced, then no single version can provide one truth. Yet a choice is always made. If truths are relative, then choosing a version becomes a matter of appropriateness or applicability (Goodman, 1978), and less objective and neutral than conventional science would let us believe (Quine, 1953). Choices then are made on the basis of political and personal beliefs. Being explicit about such choices would already be an enormous step forward in understanding agricultural research and extension.

If agriculture is to be treated as the social process it is, then several key aspects of context will need to be considered. Agricultural development needs to be set in time, as a longer-term process rather than a series of defined projects, and needs to consider people's historical experiences. Diversity within rural communities and among external agents need to be addressed, by recognizing that different actors hold different versions of knowledge. Issues of power, control and conflict will need to be considered (Scoones and Thompson, Part I). Changing conventional approaches also involves challenging the nature of interactions between rural people, and researchers or extension workers. The importance of training to recognise the political and personal dimensions of agricultural development will also need to be addressed.

Time

Change takes place over time, and it takes time. Crop varieties, like people, have their own biographies, which are often intimately entwined with those

who cultivate them (Box, 1987). 'New' crops can be woven into 'old' systems of practice, or stand alone as products of modernity with only a market value. Cropping patterns, land preparation techniques, ownership and innovation are always located within a complex of historical processes. Without understanding these dynamic processes, agricultural research and extension may obstruct, rather than facilitate, positive change. There is no such thing as a timeless, perfect variety or technique that stands outside wider processes of change. Some of the most interesting challenges for research and extension lie in understanding how people bridge different ways of knowing, adapt extension recommendations and tips from contacts from outside the 'local' area and integrate the 'new' into 'traditional' practices.

Understanding the dynamic nature of agricultural processes requires an appreciation of local histories. Yet histories, like any form of knowledge, are neither singular nor necessarily consensual. As Cross and Barker (1991) show, accounts of history as told by local people are retold and reshaped to reflect current concerns and contingencies. They present personal reactions to and experiences of events, and are therefore necessary to understand local perceptions of innovations and interventions.

Participatory approaches increasingly draw on oral history to explain the past, to make sense of the present and to plan for the future. Both FSR/E and FPR are still weak in this respect. PAR offers important experiences for agricultural methodology, while PRA is increasingly incorporating dynamic, historical perspectives in its approach (Schoonmaker Freudenberger, Part II).

One implication is the need to move away from quick-fix solutions, a fallacy which remains largely unchallenged. Whilst dwindling financial resources make ever-increasing demands for short-term solutions to problems, experience has repeatedly shown that these interventions are either ineffective, unsustainable or counterproductive. Cost-cutting does not equal cost-effectiveness, no matter how desirable this might be. Making long-term commitments is crucial, yet depends on the willingness and capacity of those within agricultural institutions to make the appropriate decisions.

Location

Agricultural interventions need to address issues of location within the community, between disciplines and sectors and between organizational levels. If we acknowledge that each person has her/his own valid version of events, then methodological change will be needed to address issues of difference, such as gender, age and ethnicity, more systematically (Welbourn, 1991). Gender analysis has been partially incorporated into some methodologies, such as FSR/E and PRA, and differences in economic status guide most approaches, although not always thoroughly.

It is critical that *locally*-perceived axes of difference form the basis for research and extension activities, rather than differences considered relevant and imposed by outsiders. There is no reason to assume that 'our' notions of gender or wealth are shared by others. Axes of difference are

not rigid, universal categories that hold for all aspects of people's lives, but are often cross-cutting, defined and context-specific. In certain activities women's age may be more important than their femaleness. In others it may be their wealth, ethnicity or religion, or a combination of all of these differences. These complexities present crucial methodological challenges.

Differences between the disciplines and approaches used in research and extension also need to be considered. Multi-disciplinary teams have been stressed especially in FSR and RRA. Rarely, however, are the methodological challenges of such teamwork fully addressed. Specialists often continue to impose their own fragmented concerns, rather than explore the challenges of *inter*disciplinarity (Rhoades *et al.*, 1987; Rhoades, 1990). Rural people have much to offer specialists in their own analyses of their complex and interdependent livelihoods (Chambers, 1992a). Methodologies are needed which focus more on both team-building and on linking disciplines and sectors, for which PRA can provide much inspiration.

Interventions take place within the multi-level linkages of institutions and organizations of agricultural development. Inevitably, the idea of working at multiple levels is fraught with practical as well as conceptual difficulties. Yet for agricultural research and extension methodologies, it is important, at the very least, to consider the politics and implications of how these different levels interact, and how this might influence the process of agricultural change. Locating interventions in the political arena is only considered systematically in PAR.

Whose knowledge counts? Control and conflict

Participatory approaches for empowerment which explicitly aim, at least in theory, to give control of the development process to rural people include PAR, DELTA, Theatre for Development and PRA. Protagonists of such approaches may stress that it is the knowledge and solutions of rural people which count, yet rarely consider what implications this has for their own roles, expectations and influence.

The different people who comprise the 'local community', and who are urged to control their own research and solutions, have relative positions of power. Each position offers differential access to the support of others and to resources. As different interest groups or individuals are consulted, so competing, contested and changing versions of 'community needs' emerge. Their different versions stem from different agendas and means for enacting some solutions or blocking others.

These considerations raise several key questions. Can all the, potentially conflicting, versions and solutions be considered? If not, then whose side will be taken and how will this be decided? Who will benefit or lose in the long-term from interventions which might initially be aimed at marginal groups? Such political questions are as relevant for crop breeding as for community development, as they will determine the final impact. Even if they are not explicitly addressed, implicit choices will always be made.

The main question is: who calls the shots? Insensitive intervention by development workers can undermine the strategies used by marginalized

people to resist domination, disarming them of their 'weapons' (Scott, 1985). Some women, for example, may not wish to have their interests represented where it involves exposing their strategies for dealing with present constraints. The temporary presence of resource-bearing agents may temporarily force concessions or gloss over deep-rooted conflicts, but might not generate structural change. By ignoring, rather than exploring, conflict, they may make matters worse and effectively silence marginal voices. In general, existing methodologies are weak at recognizing and dealing with situations of inherent or emergent conflict.

Not all conflict is negative, nor should it necessarily be stifled. Provoking creative conflict can have a positive impact. In situations where overt conflict is *lacking*, creative conflict may stimulate constructive change. Here external agents contribute more as catalysts than as listener and learner. Rather than a limitation, the power of external agents, or 'outsider effect', can have its advantages (Messerschmidt, 1991, 1992). One methodological area worth exploring is how to reveal and deal with creative conflict. The methodological challenge lies in enabling both external agents and local people to cope with creative conflict and conflict resolution. Such skills or increased awareness can be used by local people to conduct their own struggles following their own priorities.

FSR/E and FPR neither recognize nor deal with conflict or political choices. PRA has been used for conflict resolution (Conway *et al.*, 1989), but it does not approach this systematically. DELTA tends to obscure conflict by dealing with 'the community'. Both PAR and Theatre for Development are based on the assumption that conflict exists and must be addressed, from which agricultural research and extension can learn much.

Interaction

Agricultural research and extension is based on interactions between external agents and farmers. While all the approaches discussed here highlight the importance of good rapport, the effect that external agents can have on the processes of knowledge production is only partially recognized and rarely are communication skills stressed sufficiently.

PRA highlights the importance of being aware of – and suspending – biases, although in practice this generally falls short of the ideal. PRA, along with DELTA and Theatre for Development, appears to offer a strategy where the initiator of a discussion or exercise plays no further part in determining what is represented. In practice, this often leads to the mistaken belief that they do not influence the production of information. Each external agent carries with her/him an identity which affects how the interaction develops.

Important lessons can be learned from PAR which situates research in a process of mutual learning between people with different experiences, knowledges and skills. The conventional subject/object relations between researcher and researched, and the power relations this implies, are rejected and a common goal is sought. Such collegiate relations, in which external agents have an explicitly proactive role, are only possible where

such common goals can be identified. This poses considerable methodological and institutional challenges, as the value systems embodied in agricultural institutions are generally not those of rural people.

Opening up research and extension institutions and enabling rural people to understand the workings of western science in practice is as important as urging external agents to appreciate local knowledge. Rather than teaching the farmers 'basic science', it may be more constructive to allow them to ask their own questions about western scientific experimentation and extension. This may reveal to scientists the many, often conflicting, dimensions of their own knowledge.

The most important question for conventional agricultural scientists and extension workers is how they can deal with their changing roles. When farmers analyse and experiment, external agents will serve as advisers, catalysts and convenors. When farmers choose specific changes, external agents will help to search for and supply them with it (Chambers, 1993). This is no mean feat and will require extraordinary efforts of the individuals and institutions involved.

Towards experiential learning

If agricultural researchers and extension workers are to deal with dialogue, through which ideas are shared and learning occurs, then they will require fundamentally different training. New approaches to continuous learning need to be developed within and outside agricultural institutions. This type of learning differs radically from the formal training setting 'where the trainee becomes the object of training and a depository of knowledge delivered by a trainer' (Tilakaratna, in Fals-Borda and Rahman, 1991: 138). Shifting from a teaching to a learning style has many implications, such as increasing the focus on *how* we learn, rather than what we learn, and focusing on personal exploration and experience.

Bawden (1988) distinguishes three facets of the learning process, arguing that only two of these – *scientia* (learning that) and *techne* (learning how) – form part of standard curricula for agricultural students. The third, which he calls *praxis*, concerns the experiential aspect which is often ignored. Bawden urges a recognition of the central importance of personal development in learning. This involves addressing the experiences through which students develop their understanding, and acknowledging the limited role that technical training plays in becoming an effective agricultural worker.

Future challenges

The challenges laid out here will require serious attention and a concerted effort if they are to increase the effectiveness of agricultural research and extension. Addressing the issues of time and of location requires a fundamentally different approach to the scope and dimensions of research and extension. While some argue that this process would become too expensive, the past has shown that avoiding these issues will not lead to

sustained and positive changes. Acknowledging the political dimensions of agriculture through the issues of interaction, control and conflict reveals the wider implications of the choice of methodology and of the role that different actors play in the process. Incorporating experiential learning in developing new methodologies that embrace these challenges is a highly personal and political process.

For such changes to spread and be sustained will require the mutual reinforcement of participatory methods and new approaches to learning and institutional support (Pretty and Chambers, Part III). Many methodological limitations to date stem from paying insufficient attention to the institutional contexts in which they take place. This is where many of the new challenges lie (Part III). Learning to acknowledge the value and specificity of our own experience, while seeking ways to appreciate other perspectives inevitably entails making 'mistakes'. Institutions will need to support self-critical awareness to benefit fully from these valuable opportunities for reflection and change.

Participatory watershed management in India: the experience of the Aga Khan Rural Support Programme

PARMESH SHAH

Alternatives to conventional soil and water conservation

Conventional soil and water conservation (SWC) programmes have been remarkable failures. Huge amounts of resources have been spent in the name of conservation and environmental protection, encouraging, often coercing farmers to adopt SWC. Few farmers benefit, structures are rarely maintained and inadequate implementation by outside technical teams often causes more erosion than it prevents (Pretty and Shah, 1992). Consequently, many rural communities have become disillusioned with conventional SWC programmes and have resisted efforts to implement them.

New evidence suggests that there are a growing number of mostly small-scale projects that are sufficiently successful to warrant their application on a much wider scale. These include both government and non-government initiatives in India. These have adopted flexible and long-term approaches that build upon local knowledge and skills, reinforce local village organizations, involve villagers in technology generation and employ village facilitators for appraisal, planning, implementation and monitoring. The external institutions act as support organizations playing a catalytic role of facilitation and networking. The result of working closely with farmers at all stages has significantly increased crop and livestock productivity; the

(8) *Prioritization of options and appraisal.* At this stage, discussions are initiated with the community in order to identify priority options under the resource management plan. This leads to conducting shorter, but intensive topical appraisal exercises which include transect walks with the focus groups. These concentrate on the local solutions identified by the people. The aspects considered during the appraisal exercise include: the technical feasibility of the solution, financial viability, the extent of benefits and the impact on the poor, resource investment and contribution by the community, the institutional framework and training inputs required.

This process takes place at varying speed in different villages. In some villages, the participatory appraisal and planning process takes less than a month. In others, it can take up to half a year by which time the community has gone through a number of intensive discussions.

(9) *Preparation of proposals and presentations to the external agencies.* Depending on the activities identified by the community, a simple proposal is generated by the community. This proposal is then shared with the external agencies which want to fund the implementation of the plan (e.g. AKRSP, government, banks). This village natural resource management plan also becomes a future reference for monitoring and evaluation.

Investment in watershed management: programme impacts

After the initial phase of appraisal, planning and training, the extension volunteers' (EV) capacity to handle the programme improved considerably, and AKRSP is now in a position to triple the expenditure and investment in the watersheds. It should be noted that this increase in investment has been accompanied by corresponding increases in local contributions. The concept of building a local stake has been retained with higher investments in the programme and lower unit costs. The costs of watershed treatment in the programme work out to roughly Rs 1340 per hectare, compared with the Rs 3000–7000 per hectare incurred by various government-administered watershed management programmes. This is significant, since all major government programmes in the area give a 100 per cent subsidy for similar programmes. This reinforces the argument that local communities invest more of their internal resources in a programme if they are supported by a facilitating institution once their local capacities are strengthened.

The performance of the programme has been analysed for economic performance indicators. Table 1 demonstrates the impact on income in the watersheds in which AKRSP is working. It shows a significant increase in the profitability of the investments made. The impact of long-term flows from common property resources has not been taken into account in these computations. These data are in essence no different from those of any other watershed management project. They have been presented to show that enabling institutions supporting participatory watershed management can also effect significant increases in productivity and income generation over a relatively short time-frame.

The data show the high profitability and low start-up costs for the technologies developed, managed and administered by the local institutions.

Table 1: Performance indicators of the AKRSP-supported watershed development programme in Gujarat, India

Performance indicators	*1988–9*	*1989–90*	*1990–91*
Number of villages covered (cumulative)	3	29	36
Area developed each year (ha)	240	852	2,146
Investment made (Rs)	78,515	663,603	2,862,560
Contribution by community (Rs)	36,732	321,395	1,445,046
Overheads as a percentage of the total programme cost	29	14	5
Cost of preparing treatment plan per acre (in Rs)	325	113	25
Cost for arranging community ploughing per acre (in Rs)	125	75	13
Area of watershed covered per professional (ha)	40	150	220
Net income increase affected by each professional (in Rs)	44,000	165,000	242,000
Number of extension volunteers trained	38	83	77

These initiatives have proved to be viable and the communities have been increasing their contribution every year. The communities are also involved in monitoring and evaluating the impact of the programmes.

Additional benefits due to the strengthening and support of the village institutions multiply the productivity and sustainability of the watershed activities. Village institutions have achieved significant results in mobilizing local savings, initiating short- and long-term group credit and marketing farm produce. This process not only improves the sustainability of watershed management as an activity, but also helps to improve the viability of the village institutions, as they are able to build a capital base. This capital enables the village institutions and their members to take risks that they might not otherwise have taken.

The investments made by farmers on their private lands have increased by more than 50 per cent since the initiation of the watershed management programme. The village community has also taken up a number of community operations such as ploughing, plant protection and use of implements and post-harvest equipment, coupled with credit and pooled marketing of the agricultural produce. This shows that the village institution is becoming a conduit for higher economic investment and diversification. This is also reflected in the confidence of financial organizations to advance credit to those institutions with a large membership of small

ive groups. This allows us to bring into view agency and structure simultaneously (Drinkwater; Long and Villareal, Part I). This is important for ARPT as a national agency, since we are trying to achieve both a depth of understanding into the diverse nature of farming systems within an area, as well as to spread the benefits of this understanding to achieve broader coverage.

System and co-operative conflicts

Relations between households within a cluster and between individuals within households are constituted by elements of both co-operation and conflict. This means that outcomes of co-operative conflict, like those of production activities in general, are unlikely to benefit participants equally. Co-operative conflicts are thus those that occur between individuals or producer households within a cluster. They can be contrasted with system conflicts, which are those which affect the cluster and its (implicit) objectives and activities as a whole (cf. Sen, 1984; Sen and Dreze, 1989).

Examples of both types of conflict can be provided from the Tonga farmers in Mobe. Their production activities are cash crop oriented – maize and cotton – with the result that although the clusters are nearly always staple secure, foodstuffs for 'relish' purposes may be short. Malnutrition was a problem, especially amongst children. Men and women identified causes as lack of hygiene with respect to food preparation, lack of relish varieties, lack of time for food preparation, and polygamous marriage practices which produced too many mouths to feed. Men emphasized lack of hygiene as the primary factor, but women saw this more as an outcome of their having inadequate time for preparation because of their being too busy in the fields.

In this instance a system conflict is connected with a co-operative conflict, the allocation of wives labour time. When it was asked, 'Why do men not give women enough time to work in their own fields?', the following short exchange ensued:

> *Mweene* (Primary producer): If you make the mistake of allowing a woman to work on her field you have lost. Because the next time you want them to work on your field they will refuse and say why have you changed your mind?
> *Mrs Soko* (Wife): That is not true because if he gives me two days to work in my fields, I will also want to help him and I won't say no.

Here it is the conflict between men and women with the impact on diet and nutrition that is the greatest problem. Amongst poor farmers, more deeply-entrenched system conflicts can be much harder to address. Amongst Swaka farmers in Mobe it is the maize-vegetable syndrome; difficulties in marketing vegetables have led to declining returns, which means less income to invest in maize, which leads to poorer yields and so on. In St Anthony's, a major system conflict amongst the resource-poor cluster type was slightly different. The dilemma these farmers face with regard to food staples is whether to concentrate on sorghum or maize. Sorghum is the

safety-first option as production is reasonably resilient and so one can nearly always produce enough food for the year. But it requires much labour – the bird-scaring whilst the grain is ripening – and there is no surplus and limited market. So if one wishes to try and accumulate, it is maize, 'the business crop', which has to be given the larger acreage. But the maize tends to be planted late (waiting to hire oxen), and in the drought 1991–92 season those farmers concentrating on maize harvested almost nothing.

Conclusion

The RRA participatory research exercises, conducted in the areas of farmer research groups, form part of the ongoing interaction with these groups. As a result of the exercises we are trying to deepen ongoing interaction with the research groups. This includes developing different relationships with different types of farmers – 'collegial' with slightly larger farmers (+5 ha maize) and 'collaborative' with smaller farmers (Biggs, 1989). The substance of these relationships is slowly evolving too, after the first meetings with farmer research groups in 1990 when we obtained only a list of people's crop priorities for research. We are now understanding more about what impact an intervention will have on a society – who will benefit (or lose), and how differentiation within that society will be affected.

There remain areas where we as researchers perceive things differently from farmers. It is a gap across which knowledge cannot always be conveyed as a portable commodity. One of our major challenges therefore is to remove the gap: through engagement (the use of participatory methods and an active farmer role in on-farm testing), we seek to achieve a mutual broadening of horizons in order to provide a common basis for understanding.

Quality control, method transfer and training

JANICE JIGGINS

Validation through experience

The issue of quality in rural development methodologies is not often raised. Contextual forces appear to be more powerful than method in determining outcomes. But unless the question is addressed, the current wave of participatory enthusiasm could falter.

Participatory approaches and methods are validated experientially, by their efficacy in reality. The methods meet the practical quality test of 'fitness for function' in the sense of providing accurate information and measurements (e.g. Gill on rainfall, 1991), in both biophysical and human domains, in forms readily usable by individuals, communities and outsiders.

As long as the methodologies are taken up by those purposively looking for such approaches and skills, it is probable that peer review among practitioners (and here I include farmers and other community members as practitioners), has helped to maintain quality and a culture of open learning in which mistakes can be admitted and corrected. But with the rapid spread of participatory approaches in agricultural development, is quality under threat?

Quality under threat?

Participatory methodologies are beginning to be adopted by large, often bureaucratic institutions (Pretty and Chambers, Part III). Anil Gupta at the Indian Institute of Management (IIM) in Ahmedabad, frequently has warned that methodologies cannot be expected to instil participatory values in the hands of individuals unable or unwilling to go through the necessary 'reversals'. Participatory research and development approaches such as RRA, PRA and PTD may prove as expert-driven, top-down, and extractive as the methods of the dominant paradigms. Chambers (1992c) worries with respect to PRA:

> The label will be used or claimed for activities where behaviour and attitudes are not participatory; that these activities will be done badly; and that good PRA will be discredited. There is a danger too that the demand for training in PRA will so outstrip good supply that some will claim to be PRA trainers when they have no direct personal experience of good PRA.

Different kinds of quality loss

There are various kinds of quality loss:

- Spurious 'hardening' of qualitative methods occurs by enfolding them in an unwarranted statistical sampling framework;
- Hierarchical modes of learning return even within 'participatory' exercises in which farmers are supposed to be the 'experts' and service personnel the 'learners';
- Gender bias leads to the exclusion of women. Even though the participatory methodologies themselves may be used effectively, the quality of the inquiry is diminished;
- Normal professionalism prevails when people are uncertain or unconfident;
- A method, as an end in itself, is emphasized, rather than methods as effective ways of exploring particular questions.

How method use might fail tests of quality

There are three ways in which method use might fail to meet tests of quality. Firstly, method use might fail to meet the test of *efficacy*, that is, an inappropriate tool is chosen for a given task.

Second, method use might fail the test of *efficiency*, that is, the minimum or constrained resource is not used. Here, participatory methods appear to score rather well. Specialist scientific and technical personnel are desperately thin on the ground in an increasing number of the poorest developing countries. The linkage of farmer experimental capacities and specialist researcher capacities is, in this sense, efficient.

Third, method use might fail to meet the test of *effectiveness*, that is, using participatory approaches might not be the right thing to be doing. In contrast to the narrow confines of what is normally regarded as 'good science', participatory methodologies are effective at understanding the complexities of diverse, risk-prone farming systems.

The challenge of effectiveness: 'good' science and participatory methods

What constitutes 'good' agricultural science has come to be defined narrowly, with problems reduced to their smallest possible components, investigated through a relatively small range of observable variables. Factors that do not fit into a clear chain of cause and effect are not considered significant. Activity which establishes a high degree of control over the system being studied has become equated with acceptable practice. The basic methods, models and their related assumptions establish the criteria by which claims about what constitutes 'good science' are assessed.

However, these criteria tend to exclude the very things that need to be studied in order to operationalize the concept of sustainability: that is, complex, indirect and multiple interactions among composite variables; the possibility of other end-effects than those of linear causal chains; and debate about what constitutes the parameters and terms of the system studied. Participatory approaches are peculiarly well suited for capturing these kinds of effects, and for eliciting debate about the nature, boundaries and performance of complex systems.

Another contrast can be made. 'Good science', in the narrow sense, generates reliable knowledge about the world (i.e. a goodness of fit between ideas about how the world works and observable phenomena) through experimentation. The reliability of the experimental method in the narrow definition of good science depends in part on the understanding that there is a knowable mechanism linking cause and effect, and on replicability, which reduces the significance of the experimenter's identity in the result.

Interpretation of the results, rather than the experiment itself, is where the problems and disputes arise. Often, interpretation draws on the very theory that is being tested. Further, the experiment itself does not necessarily change theory; theories change as people assign different meanings to experimental work. Just as in any other domain of human activity, the construction of meaning in science depends in part on beliefs about an experimenter's honesty, competence and skill. Acceptance of a particular meaning or interpretation emerges through bargaining, debating, compromising and alliances; a peer review process which is not, and cannot be, divorced from wider world views and power relations (Scoones and Thompson, Part I).

Indigenous knowledge and local experimentation turn these attributes into strengths. Distributed knowledge and experimental capacity (as opposed to elite knowledge and centralized scientific capacity) enriches the meanings given to experimentation and the interpretation of results. At the same time, idiosyncracy is controlled by peer review and assessment of the experimenter's identity, in as rigorous a fashion as it could be: a household's or community's survival may depend on it.

In much 'normal' science, uncertainty is largely technical, arising from questions of quantitative inexactitude: the tools used ('scientific method') are not considered problematic and are understood to be the source of the guarantee that conclusions are valid.

In the domain of participatory approaches, we are dealing with settings where random variation is small relative to other uncertainties. The rate of system change is high, the sources of uncertainty complex, the number of actors involved potentially huge, and decisions may have enormous consequences. Statistical tools, computer modelling and laboratory research are thus inadequate and inappropriate formalisms.

Uncertainty in participatory method is largely epistemological and ethical. The 'art of the soluble' (the puzzle-solving, 'knowing that' of science), and the 'art of the do-able' (the situation-improving, 'knowing how' of professional activity), must be combined with the 'art of usable ignorance' (the evaluation and creation of future states which are unknown and unknowable, in which 'who knows' counts) (Funtowicz and Ravetz, 1990). Practitioners compromise quality if questions of quality are treated solely as practical concerns and not also as epistemological and ethical issues (Waters-Bayer, Part II).

Participatory methods make explicit contrasting meanings and interpretations, and the different values given to key attributes of sustainability, such as hazard and risk, thresholds, flexibility, adaptability and complexity, differences which are often subsumed or assumed. So, in terms of the effectiveness test of quality, participatory methods, it might be argued, better approximate good practice than normal professionalism.

Transfer of methodology

Quality-conscious transfer of methodology requires systematic documentation, formalisation of methods and of the parameters within which they are efficacious and efficient, effective and clear expression of the underlying concepts and research disciplines from which they have been elaborated.

Documentation. A number of centres, in both the North and South, are providing documentation services. However, communication and diffusion research suggests there is a numerical limit to effective quality control by this means alone: one centre can service something in the range of 500–800 individuals. The way to expand the effect is to increase the number of centres with whom new practitioners might link up; this, in fact, is happening. There are at least eight centres in India, for example, now documenting and circulating practitioners' experiences with participatory methodologies; many of them now also offer field training.

Formalization. The formalization of methodologies might ensure rigour as they spread more widely among institutions which do not formally espouse participatory values. It might ensure also the extinction of creativity and the introduction of mechanistic application. Somewhere between these two potentials there is a need for more guides for practitioners and trainers which stress the 'non-negotiable' principles and values.

Elaboration of underlying concepts. Few practitioners or trainers are aware of the research and concepts which underlie the methods they are using. It is evidently not the case that good quality is dependent on such an awareness. Yet an appreciation of the intellectual and research foundations of practice would strengthen participatory professionalism.

The foundations are grounded in an unusually large range of 'hard' and 'soft' disciplines. If practitioners want to know why it is necessary to iterate methods across populations or within stratified communities, anthropological and sociological research and statistics might provide some answers. If they want to be assured that villagers' mapping is theoretically legitimate, they would need to turn at least to semiotics. A bibliography of key studies for each of the most common participatory methods would assist those who want to, or need to look up the foundation research.

Training and normal professionalism

At the heart of the problem lies the challenge not merely to replicate experiences and methods, but to engage in a process of reproduction as creative evolution. In my view the process must include colleges and universities. Catch-up training relatively late in professional life will not bring about the scale impacts which seem to be needed. Many believe that training in participatory research and development approaches can be done *only* where there are opportunities to learn and try out methods in the field. Others simply believe that field-based training is better.

I believe that, given a participatory training mode, participatory methods and processes can be learned in an academic context. Success requires the weaving together of three basic elements: substantive information, experience, concepts and skills; the 'real time' experience of group dynamics and method practice; and on-going critical review of the participatory process and facilitation techniques.

The key to success is to establish an atmosphere in which participants feel safe to experiment and to criticize one another (and the facilitator), a style of facilitation which encourages participants to take responsibility for planning, evaluating and running the course, and the encouragement of recursive, experiential learning.

Mende knowledge of rice germplasm is thus based on a sound empirical methodology; one that leads to progressive learning and valid, adaptive lessons. Evidence suggests that Mende rice knowledge system is deeply acculturated, but also adaptive and progressive. One appropriate 'test' of the value of this kind of local knowledge would be to make a representative collection of farmer's germplasm to ascertain whether or not the selections therein perform up to some standard (better than average for 'mixed' seed, equal to or better than research station varieties in local conditions and under local management). This would serve to confirm the likelihood that local types are indeed the result of deliberate selection decisions and not just the outcome of haphazard or undirected reservation of seed.

Participatory methods and political processes: linking grassroots actions to policy-making for sustainable development in Latin America

LORI ANN THRUPP, BRUCE CABARLE, and AARON ZAZUETA

Lessons from innovative participatory processes linked to planning and policy

Innovative participatory approaches to sustainable development are being developed to overcome some of the constraints of previous approaches and to incorporate new dimensions linked with policy issues. Various groups, North and South, are working on such progressive adaptations. While these efforts retain many of the important principles and features of previous participatory methods, they also entail significant changes such as widening the sphere of influence of participatory activities, linking the efforts with policy-making processes, and replicating the successful ideas and actions of local people in broader institutional and political arenas. Examples of these new approaches are found in Costa Rica, Guatemala, Ecuador, Mexico and other parts of Latin America (Box 1), among groups working on natural resource management in collaboration with the Center for International Development and Environment of the World Resources Institute (WRI).

Towards a process orientation in participatory initiatives

Innovative dimensions: scaling-up and evolution into planning

In recent initiatives, participation is developed as a process to fit the rhythms of local communities and within a time frame long enough to ensure continuity, rather merely using a 'project' orientation. The specific

kinds of participatory activities vary, and need to be adapted to local conditions, but they generally evolve over time, tying into planning, capacity-building and social development. These new approaches avoid some of the limitations of typical projects, like inflexible targets, termination dates and prescribed rules. Instead, the processes often allow for considerable innovation and 'learning by doing.'

In these experiences, the process generally begins from the 'ground up,' using variants of PRA for community-level analysis and planning, to determine major natural resource management problems and priorities. Representatives of diverse interest groups within a community or a micro-region jointly gather information, discuss, analyse and develop plans. Then, the efforts are 'scaled-up,' by repeating similar PRA workshops in neighbouring

Box 1: Widening the impact of participatory resource management planning in Ecuador

In the Andean region of Ecuador, participatory planning and management experiences began with meetings in 1988 between representatives of indigenous peoples' federations, technical people and decision-makers from the Ministry of Agriculture and Livestock (MAG), and facilitators from a local NGO (called COMUNIDEC) and the World Resources Institute. Together, these groups developed ideas and plans, with local people taking a key role in decision-making. The local groups, with the facilitators, then employed participatory planning methods adjusted to local needs. Participants were involved in assessing their own resources, analysing problems and opportunities and developing resource plans. Additional workshops were then held in other communities, over the course of three years. Over 200 Andean communities in the provinces of Chimborazo and Bolivar were involved.

The Andean adaptation of PRA, called Planeamiento Andino Comunitario (PAC) puts more emphasis on oral expression, condenses each exercise into a shorter time, incorporates musical interpretation and short skits and uses village festivals as the main forum such activities. Through the PAC process, the participants reached agreement that soil erosion and declining soil fertility were among priority concerns, and they proposed specific practices, policies and actions to address these problems.

Subsequently, representatives of several federations met to develop a wider plan, based on a sharing of community plans, which was relevant for the entire area. This part of the process also included dialogue with representatives of MAG and a foreign donor (the Dutch Development Agency), who agreed to provide funds to implement the plans developed by the local people. Furthermore, the PAC process had a profound impact on the FAO's Participatory Forestry Development Programme in the Andes, which was significantly modified to incorporate not only the communal plans developed under PAC, but also village institutions as implementing agencies of forest management initiatives.

communities, bridging different areas. An effective means to diffuse PRA is through training local people to become facilitators, who then serve as '*multiplicadores*'. Each community generates concrete products (e.g. documents of local resources, problems, options and planned priorities) and then shares them with neighbouring groups. The process evolves into regional participatory meetings to discuss the results and to build a consensus on goals, plans and actions. This involves integrating rural peoples' knowledge and needs into a broader dialogue. Alliances are formed among interest groups, as part of a wider process for regional natural resource management in the long run. This process presents new opportunities for democratic decision-making. Sometimes, the local groups have become political entities capable of negotiating effectively with government bodies or with competing interest groups.

Extending participatory approaches in such ways widens their sphere of influence. It usually requires more time, labour and resources; but the investment pays off and helps build peoples' interests in resolving regional problems.

Methodological innovation and flexibility

These initiatives explicitly avoid using standardized methods and 'recipes' for developing participatory tools and exercises. Facilitators often use basic principles of participatory planning, but have found that blueprint prescriptions are limited or inappropriate. Instead, local people are encouraged to adapt methods and innovate, adjusting approaches to local conditions and interests, so that they will develop understanding and 'ownership' of the methods they develop and will continue to use them. For example, in Ecuador, COMUNIDEC and five federations of indigenous peoples combines some PRA principles with vernacular planning practices to develop Andean Community Planning (PAC), an approach that is compatible with Andean perceptions of nature, causality and time (Box 1).

Cross-fertilization between different groups and participatory approaches is also fruitful. No particular tools are *a priori* considered 'superior' to any others. This kind of methodological flexibility and innovation does not mean that rigour declines. An emphasis on inductive reasoning, triangulation (i.e. posing the same question in different ways to different people), diagrams to aid data collection and analysis and systematic facilitation techniques are some of the ways in which rigour is incorporated into these methods, without falling into rigidity.

Forging links with social organizations and policy fora

Another important characteristic of these efforts is that they are based on ties to effective local organizations that address social/environmental issues. Similarly, collaboration is established in such efforts when the groups are committed to develop participatory processes over time. Both local interest groups and external support organizations must be dedicated to follow up the plans together. It is also essential to reach agreements on the objectives – which must be clear and realistic given available resources – and on the roles of insider groups and external support organizations.

These initiatives have been particularly effective when linked to specific policy decisions. In such cases, timing of activities is very important. For

example, in the Ecuadorian case, indigenous federations, along with COMUNIDEC and the Ministry of Agriculture began developing the Andean Community Planning (PAC) process at the same time that the government began to form a National Forestry Action Plan. PAC was therefore a part of a wider policy change, supported by the government and donor agencies, to address forest management issues and land degradation – a relationship that contributed to its success. Sometimes, this kind of integration into a government plan or policy forum is not possible at the outset, but such opportunities can usually be found if local groups and external supporters search for them.

Appropriate pacing and rhythms

Unlike some rapid assessment approaches, these new participatory efforts do not put a premium on speed. Experiences have shown that these participatory processes are more effective if their pace is matched to the rhythms of rural life and are sensitive to the particular social dynamics and cultural values of the area. Activities need to be timed carefully to avoid disruption of local peoples' work and rituals. For example, harvest time generally requires all of labour and attention of peasant households – a fact that must be respected in planning activities.

The process of extending the efforts into other areas, and scaling up into policy dialogue, may require many weeks and months or even years. However, each individual workshop or group activity must be relatively short, to avoid overburdening participants. Busy people cannot afford to spend a great deal of time in meetings, discussions and the like, because it cuts into the valuable time for productive work. The methods should be iterative, allowing time for the group's reflection, discussions and analyses. Working in step with the communities' pace helps to establish rapport between local people and external actors, and facilitates systematic research and planning. Extending the time of participatory activities can raise costs, especially in terms of labour costs, but it can also increase the returns.

Actors and alliances

Who participates, decides and benefits?

In participatory processes, representatives from many interest groups, classes, ages and both genders are involved and benefit from the activities. Facilitators avoid relying solely on village leaders or 'key informants.' Usually the participants include not only local people and NGOs, but also representatives of public institutions and/or the private sector who are stakeholders in the main issues under consideration. Expanding diversity can make participatory activities more effective and contribute to the aims of resource management, partly because more interest groups are involved in deciding, analysing and taking actions. Certain biases may be desired for some activities. For example, if an initiative's focus is on the needs of

marginalized peoples, it may make sense to involve mostly indigenous peoples or poor farmers to help to address previous inequities or exclusionary approaches.

Measures have been developed to bridge the gaps between external and local participants. Establishing genuine partnerships often requires external support organizations to make longer-term commitments and to gain in-depth understanding of the local people and their culture and environment. When possible, it is useful for local people to share central responsibilities at all stages – from early decision-making to documentation and follow-up activities. They also should take a lead role in analysis of the methods and the information gathered in this process and in assessing the participatory activities from their perspectives. This sharing of responsibilities improves the sense of mutual dedication and equity among all involved. It also helps build capacities and facilitates progress.

Local people's ideas and capacities are just as important as the outsiders' ideas. Yet, communication between the two groups can sometimes be difficult, given cultural differences. To facilitate communication, successful participatory planning ensures that all participants are on the same footing. This is accomplished by clearly defining the norms and the premises used in discussions among different interest groups, by agreeing on common terminology for key concepts, and by using diagrams, incorporating local terms and concepts, to record and carry out group analysis. Moreover, outsiders avoid an 'extractive' mode of exploiting local knowledge. Instead, local ideas and alternative epistemologies are valued for their own intrinsic worth and for their vital importance for group decision-making.

Shifting the leadership to local people also can be fruitful in these participatory efforts, and helps to prevent local peoples' dependency on external support. In some cases, however, it is difficult to shift leadership in this way at the beginning, partly because local people may have little experience leading such initiatives. In these situations, locals may develop increasing leadership over time, after they gain familiarity and capacities in participatory processes. At the same time, the outsiders' roles in the field diminish, and the relation between the two groups often matures into a partnership. For example, during project implementation in Ecuador, Indian Federations and communities have a direct role in managing funds, while the NGO collaborator (COMUNIDEC) manages parallel funds to provide technical assistance to the Federations, but does not control the Federations' decisions. Unlike conventional projects, these initiatives hold that one criterion of 'success' is when outsiders can greatly reduce direct support and involvement, and the local people take the lead in promoting and developing participatory approaches.

Roles of policy-makers and policy issues: opening political space

Policies and government representatives can be addressed in various ways. In some cases in Latin America, government representatives participate in the discussion of plans and ideas from communities and become involvedin identifying priorities. They also provide information regarding the

means for implementing plans, constraints, or other policy issues affecting environmental and social conditions. Government entities have helped in follow-up activities by providing technical services in response to the peoples' needs (e.g. soil conservation advice), or by co-operating in proposals to donors to request funds for sustainable development initiatives at a regional level. In the case of Coto Brus in Costa Rica, following participatory workshops and consensus-building among local groups, the municipal government responded immediately to requests to complete water piping services and provide access to a communal garden – urgent needs that had been neglected at previous times. These collaborative arrangements help to legitimize 'bottom-up' ways to address policy issues and can facilitate political empowerment.

Considerable negotiation may be needed in order to reach agreements among the different interests involved; and in some cases, disagreements or conflicts emerge. Consensus may not always be possible, but effective facilitators or mediators can help reduce conflict and encourage constructive interaction. For example, in the case of Andean Community Planning, when indigenous groups wanted to have control over funding and decision-making for follow-up, the Ministry and donors opposed this idea, considering it too risky. Eventually, however, after tense debate, all parties agreed a control-sharing arrangement whereby the local organizations would manage funds under the supervision of a third party (FAO).

Building capacities through participatory processes

The processes described above contribute to the stengthening of the capacities of the local people and institutions involved. In particular, the experiences build:

- Capacities in information gathering, analysis and documentation, including the effective use of information;
- Competence in planning, management, leadership and preparing proposals;
- Skills for facilitation and negotiation between different interest groups;
- Commitments and dedication to spread and use the methods in innovative ways.

The processes also may build capacities of formal institutions, including Northern ones, by expanding their experience with participatory processes, providing lessons and critical insights from grassroots groups and formulating activities and policies that better meet local needs.

Remaining challenges

These recent initiatives show how participatory approaches are evolving (Table 1). They involve learning-by-doing and innovation. They are not 'better' than other approaches and methods, but can have a wider and more visible influence. Although experiences with these approaches have usually been directed towards natural resource management, they also

could potentially be useful for such other objectives as addressing health problems and increasing agricultural production. Many challenges must be met before these kinds of efforts can fulfil their potential. One key challenge is gaining sufficient funding and political commitment to support such efforts. Such novel measures as pooling funds are being tried and some donors are showing more interest in supporting these kinds of activities. Another critical challenge is ensuring that the plans and policies resulting from these efforts are actually implemented in a timely manner and with sufficient financial backing. Although implementation has begun in some Latin American countries, there are often long delays between completion of plans and concrete field-based actions. Such time-lags need to be avoided to prevent disillusionment among local groups.

Additional issues deserving attention include: overcoming policies that work against participatory efforts for sustainable development; supporting these efforts in the face of oppressive governments; and changing formal institutions (e.g. structures, reward systems, and goals) to ensure that the participatory methods become integrated and legitimized (Pretty and Chambers, Part III).

These kinds of challenges are slowly being addressed in Latin America, partly as a result of innovative collaboration among NGOs, people's

Table 1: Shifting emphasis in participatory approaches: evolving opportunities towards policy linkages

From	*To*
• Small-scale (grassroots groups)	• Expanded scale (larger areas, more people)
• Community level (isolated, singular)	• Multiple communities and broader regional level
• Participation of few 'key informants' (focus on 'innovators' and leaders)	• Equitable participation of diverse groups (especially marginalized people)
• Avoidance of policy/politics	• Policy linkages and opening of political space
• Analysis by external actors	• Analysis by all actors, especially local people
• Management by external actors	• Management/control by local people
• Rapid pace	• Relaxed, reflective pace
• Ignore policy/political impediments	• Address policy/political constraints
• Lack of funding	• Innovative funding/pooling efforts
• Lack of political commitment from above	• Gaining political commitment and interest
• Blockage by institutional rigidities	• Integrating with institutions
• Hindered by 'top-down' professionals	• Legitimizing alternative interdisciplinary approaches

federations and a variety of international and government agencies. Good examples include the Grupo de Estudios Ambientales (Environmental Studies Group) with the Tropical Forest Action Programme in Mexico, the Organization of Tropical Studies with municipal governments in Costa Rica, COMUNIDEC and the Ministry of Agriculture in Ecuador and the International Potato Center (CIP) and local NGOs in Peru. Yet much more work is needed to realize the strong potential from innovative convergences of approaches, institutions and policies.

varying size, and, for certain tasks (e.g. dissemination and obtaining feedback) GOs may find it easier to work through effective NGO networks. Continuing attention is therefore needed to the difficult problem of area-based, or thematically-based co-ordinating mechanisms. However, for other tasks (e.g. identification of local opportunities and constraints requiring research) GOs' efforts will have to be location-specific so that interaction with individual NGOs and farmers will be more appropriate;

- Collaborative field trials quickly allow each side to work out in what tasks it will be most cost effective. Existing cases in which respective GO and NGO roles have been worked out in field testing and feedback include those in Ecuador (Cardoso *et al.*, 1991), and the Bolivian lowlands (Thieve *et al.*, 1988), but examples are few and progress is not always smooth, as the Gambia's Farmer Innovation and Technology Testing programme indicates (Gilbert, 1990; Cromwell and Wiggins, 1993);
- Efforts have been made by GOs to institutionalize the presence not only of NGOs, but of other 'intermediate users' of GO technology, such as the private commercial sector and development projects of various kinds, in annual planning meetings and other fora (Botanic, 1991; Vales, 1991);
- An area in which GOs can gain advantage from NGOs' work – but only if they liaise cross-sectoral – lies in NGOs' capacity to address issues beyond the farm-gate. Some, for instance, have been concerned with processing and marketing (Buckland and Graham, 1990; Aguirre and Namdar-Irani, 1992). Others have been concerned with the interaction between farming and wider resource management issues, often involving common property resources such as trees (Sethna and Shah, 1993) or water (Mustafa *et al.*, 1993).

The conclusion that progress towards realizing the potential of strengthened NGO-GO links is likely to require careful effort on both sides over a long period is unexceptional. It would, after all, be surprising if the institutions – and interactions among them – necessary to respond in detail to the technological and management needs of highly diverse farming systems were themselves anything other than complex. Strong potential for promoting progress in this area lies with funding agencies. Some of the more imaginative, but small-scale, financing agencies (e.g. Ford Foundation; IDRC) have supported NGO–GO interaction in ways which allow for the diversity of NGOs, recognize their potential as 'brokers' between farmers and research services and do so in ways sensitive to NGOs' fears of being 'co-opted' into government programmes. The funding agenda of some of the larger donors, on the other hand, remains dominated by perceptions that NGOs should occupy service delivery roles, effectively substituting for activities and interventions that conventionally lie in the domain of government. Whilst some NGOs may feel comfortable with this, many of the more innovative ones will not.

Funding for closer linkages, from whatever source, will have to be tailored to the diverse qualities that NGOs bring to analysis of small farmers'

conditions, and to the development and dissemination of technologies, if valuable potential is not to be lost.

Conclusions

Providing that NGOs and the State share a common view on the future of the rural poor, and on strategies to realise that future, each side can strengthen the other through a series of functional complementarities, each of which is important in its own right. It is concluded, however, that for public sector organizations, the most significant advantages to be gained from close interaction with NGOs lie in broader shifts of three kinds:

- First, enhanced client-orientation, and an awareness that users' needs can best be served by 'problem' or 'issue'-oriented approaches to technology development and dissemination;
- Second, a recognition that a multiplicity of agencies and individuals innovate and that a valid and increasingly necessary role for researchers is to stimulate and facilitate such innovation, possibly at the expense of reducing some on-farm or on-station research. This would make researchers effective 'brokers', capable of identifying needs for technological change, of efficiently screening available sources for appropriate ideas, of liaising with a wide range of institutions in testing these ideas and obtaining feedback (Gilbert and Matlon, 1992);
- Third, a series of changes to institutional mandates, management procedures and reward systems to facilitate the introduction and consolidation of wider perspectives of this kind.

Viewed in this context, whilst macro-economic pressures to reduce the size of the public sector are bound to remain threatening, they might also, if handled skilfully, mark the beginnings of an opportunity for GOs to intensify dialogue with NGOs in order to explore new ways of enhancing the effectiveness of their own work.

Local organization for supporting people-based agricultural research and extension: lessons from Gal Oya, Sri Lanka

NORMAN UPHOFF

The Gal Oya case

In 1980, the Agrarian Research and Training Institute (ARTI) in Sri Lanka, with assistance from the Cornell Rural Development Committee, began working with the Irrigation Department in the Gal Oya irrigation scheme with small-holder farmers (average holding 0.75 hectares). This was,

at the time, the largest and perhaps the most run-down scheme in the country. The Irrigation Department's senior deputy director for water management said that 'if we can make progress in Gal Oya, we can make progress anywhere in Sri Lanka.' The district's senior administrator tried to encourage the young community organisers to introduce water-user associations by saying that if they could get even 10 or 15 of the farmers to work together, this would be an accomplishment. The assignment was to organize 10 to 15 *thousand* farmers.

The programme started in an extremely water-short season, when the main reservoir was only one-quarter full. The organizers, who had been recruited, trained and deployed by ARTI to live and work in the communities, wanted to do whatever they could to improve water management under the circumstances. The programme proceeded with the proviso that all plans must be the farmers' own, with nothing imposed from outside.

Over the next four years, some dramatic and lasting changes were made in the efficiency and equity of water use in Gal Oya. In aggregate terms, water use in the wet and dry seasons was reduced by about half. While some of this improvement in water use efficiency can be credited to physical rehabilitation of the system, most was achieved through farmers' self-help co-operative efforts within the first two years, before most of the system had been physically renovated. Reinforcing the quantitative improvements were qualitative ones. For instance, the farmer chairman for one of the most water-constrained subsystems, which included both Sinhalese and Tamil households (the two principal ethnic groups), stated that they used to have murders over water in his area, but now, by working together through their farmer organizations, they rarely had conflicts any more.

The results of this programme often seemed too good to be true, but the farmer associations have maintained themselves and have even progressed institutionally, despite many difficulties, including ethnic conflict, budget cutbacks, massive turnovers and attrition in the cadre of organizers, bureaucratic interference and unkept promises (Uphoff, 1992b). The most salient aspects of the strategy used in Gal Oya, inductively formulated, for establishing farmer organizations are described below. Some of these elements are relevant for building local organizational capacities elsewhere in order to bolster participatory agricultural research and extension programmes.

Means for strengthening local organization for agricultural development

Use of catalysts

Ideally, when seeking farmer participation in agricultural research and extension efforts, one can deal with rural people who are already organized and used to working together. Where rural people are not organized or not able to communicate or act through some acknowledged collective channels, however, creation of such channels can be stimulated and nurtured by 'catalysts' who have been appropriately recruited, trained and deployed. These are variously called organizers, animators, promoters, or motivators.

Catalysts are different from extension agents, who take a known technology to rural communities and enlist their co-operation. Along with promoting new structural arrangements, catalysts seek to change prevailing psychological and normative orientations, forge new social relations and encourage new ways of thinking and evaluating, as part of the process of organizational development.

Starting with informal organization

After reviewing prior experience with farmer organizations in Sri Lanka, it was concluded that the usual approach to establishing rural organizations – calling a meeting, passing a constitution, electing officers, etc. – did not yield sustainable local capabilities. Therefore, rather than proceed in a 'supply-side' manner, it was decided to try a 'demand-led' approach.

Organizers worked with farmers first individually and then in small groups, eventually bringing together all the farmers who cultivated along a single field channel (10 to 20). Groups began meeting on an informal basis, focusing on problem identification and solutions. Ad hoc committees and acting representatives took initiatives on behalf of the group to carry out actions agreed by consensus. When the group felt a need to have an organization, officers were chosen and the group would be recognized externally. This sequence – work first and organize later – brought forth better (more tested and more altruistic) leadership and built more solid support among members.

Whether farmer organizations should *remain* informal is a different matter. The programme tried to help groups evolve from informal to formal status, at their own pace. A related question is whether farmer organizations should have legal status and powers. Farmers will at some point demand this if they lack it. But legal standing and authority should not be conferred until it is sought and in some way 'earned', not simply given. Formal authority with legal backing is more easily abused than social authority which grows out of consensus and mutual obligations. Organizations established by legislation or legal instruments are likely to be and remain hollow shells, belonging more to the agency that created them than to their members.

Mobilizing a new kind of leadership

While 'leadership' is essential for this process to succeed, 'leaders', at least of the usual type, are often adverse influences. In our programme, the term widely used by FAO and government agencies, farmer-leader (FL), was replaced by the more democratic one, farmer-representative (FR). The latter is understood to be more accountable to the rural community than is the former, in part because representatives can and should be rotated. It is difficult for a 'leader' to be succeeded by another, since this takes away exalted status. Outsiders can strike deals with 'leaders', but 'representatives' are expected to facilitate reaching agreements that everyone can live with.

Two strategies were developed in the Gal Oya programme to encourage the emergence of leadership that was accountable and altruistic:

- FRs were chosen by their groups not by election but by consensus. This process can be manipulated by powerful local leaders and, in some situations, may not work. But when the representative must be acceptable to *all* members, factional leaders are less likely to come forward. Because groups had started working informally, everyone knew who within their group was serious about improving irrigation performance. Those who had taken the lead in giving generous, effective, voluntary leadership were the obvious choices.

  Once chosen, FRs felt accountable to every member because all had assented to their selection. Farmer-representatives had no reason to discriminate against any member since all had openly supported them. At the same time, all members felt some obligation to comply with their FRs' requests because all had publicly consented to these persons being given responsibility to improve irrigation.
- The terms of reference for the FR role were prepared not by the programme but by each group before it selected someone for this role. The organizer working with the group would get its members to spend some time discussing what they expected from a farmer-representative.

  Members articulated very high expectations: the FR should have enough time for the job, listen well, not be partisan, not lose his/her temper, not get drunk, etc. Simply stating these criteria, which could be rejected if there was no consensus on them, implicitly narrowed the pool of potential representatives to those who best satisfied the desired characteristics. Without pointing a critical finger at anyone, persons who did not meet these criteria would be passed over.

  A further consequence was to inform whoever was chosen by consensus about what the group expected. The selection process was thus a kind of non-formal training programme for representatives, made all the more effective because it was given by and among peers. Since FRs were not paid, there was no strong financial incentive to occupy this position. This created a certain moral obligation for members to co-operate, since FRs were not doing their job for personal benefit. Representatives reported that their authority (which was *de facto*) was enhanced by their voluntary status.

Within four years the Gal Oya programme covered a 25,000-acre area and involved almost 13,000 farmers. Representatives had no formal or legal authority, just the support and co-operation of district officials. The groups' performance, however, generated great informal, and so social, authority. At some point, once the utility and legitimacy of these groups and the role of farmer-representatives had been established in people's minds, legal recognition added further to their effectiveness.

Importance of small groups at the base, grouped into a federation

This process of leadership selection was possible because of the structure established, which evolved inductively with farmers. The process was quite

literally 'bottom-up', starting at the field channel level. Each field channel would be helped to organize itself, first informally, then more formally, each with its own representative chosen by consensus. Having base-level groups of 10–20 members, meant that everyone knew each other. This has been found to be important for effective rural organization (Coward, 1977, 1980; Esman and Uphoff, 1984; Uphoff, 1986; Bebbington, Part III.) It is possible to create and maintain a greater sense of solidarity and mutual responsibility in small groups, in part because 'free riding' is then more difficult.

Studies of rural development experience have found that more successful efforts correlate with multi-tiered patterns of rural organization. These have small base-level groups which give the benefits of solidarity and are then aggregated or federated within higher-level associations that offer the benefits of scale (Esman and Uphoff, 1983).

At Gal Oya, field channel representatives came together to form a Distributary Channel Organisation covering all the field channel areas served by the distributary channel. This organization in turn sent farmer-representatives to an Area Council which met periodically. The councils sent a few representatives each to sit with district-level officials on a Project Management Committee. Communication upwards and downwards, from the field to the project level, was thereby provided for. If lower-level organizations lagged in their performance, they could be encouraged by higher bodies, and *vice versa*. Today, building on the Gal Oya experience, there are Project Management Committees for all major irrigation schemes. Farmer-representatives constitute a majority on these committees, which now have a farmer chairperson as a matter of government policy.

One benefit of such a structure was to reinforce the selection of desirable leadership. The system of indirect representation initially appeared to be less democratic than direct election of representatives at all levels. But with all representatives coming 'from below' and chosen by their peers, more genuine farmers got into responsible positions, not merchants, school principals and others who could have infiltrated the programme at higher levels if there had been a system of direct election. Although the time that farmer-representatives had to devote to their responsibilities was substantial, many fine people were willing to accept this role if asked to do so by their peers, and if the task was rotated.

Adoption of a problem-solving approach

The programme was conceived and carried out in a 'learning process' mode (Korten 1980). During programme implementation, the need to follow a regular process of identifying critical problems and dealing with them on a systematic basis was stressed. This was never done as thoroughly or as consistently as hoped, but it resulted in a continuing orientation towards action. The farmer groups, the organizers and our management group at ARTI were encouraged to work, as explicitly as they had time for, through the following six steps:

(1) Identify several priority *problems* to be dealt with, either existing or anticipated; attention is directed to those problems that are judged to be both important for programmatic progress and solvable or ameliorable;
(2) Gather appropriate and adequate *information* concerning each of the priority problems and possible courses of action to deal with each;
(3) Formulate *strategies* for solving each priority problem and decide on which are the most promising;
(4) Devise *plans* for implementing each strategy, assigning responsibility for who does what, when, how, etc.;
(5) Undertake plan *implementation* as best the group and its members can;
(6) Conduct periodic *evaluation* of the progress made with each problem.

Once a problem is solved or has solved itself, it can be taken off the list and a new one added. Otherwise, if the problem persists, the group should retrace its steps. First, it may need to assess whether the plan was implemented; if not, this should be done (repeat 5). Then, if the plan did not succeed, a new one should be devised (repeat 4). Next, if the strategy in retrospect seems faulty, it should be reformulated (repeat 3). Finally, if the information base was inadequate, it should be improved (repeat 2). Alternatively, if the problem has changed or the situation was not well enough understood, the group should engage in renewed problem identification and prioritization (repeat 1).

This process was supplemented by encouraging organisers, farmers, officials, administrators and supervisors within the programme to maintain an attitude of self-criticism and to 'embrace error' (Korten, 1980). Catalysts were told that there is no disgrace in making mistakes, only in *not* identifying them, learning from them and avoiding repeating them. This is critically important, as a philosophy and as an operational principle, for effective local organization.

Starting with one or a few important tasks, but expanding as members wish

It is a truism that people sustain their participation only in things which they perceive benefit them. The corollary of this is that organizations should undertake only one or a few activities of direct and tangible benefit. This has led to a recommendation that organizations be and remain single-functional (e.g. Tendler, 1976). However, a quantitative analysis of local organizations' performance with a sample of 150 cases from across the Third World (Esman and Uphoff, 1984) found the relationship between the overall calibre of performance and the number of functions performed was the opposite of what was predicted (i.e. the correlation was positive rather than negative, though not very high). This reflects the 'natural history' of organizations. Those undertaking many tasks and doing them poorly cease to function, while organizations effectively performing single tasks are likely to take on more responsibilities as they gain experience and competence.

As shown in Gal Oya, organizations do best if they start with a focus on something very important to members, such as improving water management. This builds membership attachment to the organization, as well as its

managerial capability. As the organization becomes stronger, it can and should evolve, taking on more functions, but only those which members want it to perform. It was found that farmer organizations, once established, used their capabilities to deal with many other needs: crop protection, production credit, bulk input purchases, savings schemes, mortgage release, employment generation, settlement of domestic disputes, land consolidation, reducing drunkenness, etc.

Both those who advocate a narrow focus of activity and those who see merit in multi-functional organization are, or can be, correct if the time dimension is considered. It is good to start with a narrow focus, but supporting organizations should be prepared to assist with multiple tasks when and as members see a need for moving beyond their initial concentration of effort. Programmes supporting local organizations engaged in agricultural research and/or extension should be prepared to work with those groups in matters like domestic water supply, replacing lax schoolteachers or reassessing taxes.

The principle is that the organizations belong to their members, not to the sponsoring programme. Prudent advice may be given, about not expanding too rapidly, or not undertaking tasks in which the group seems likely to fail. Such suggestions can be offered in a collegial way, with decisions left to the groups themselves, since they are the ones who will have to live with the consequences, for better or for worse. It should be anticipated that the organizational capacities being created will not be static and should evolve according to the needs, wishes and competencies of the members. While there is now often appreciation that sustainable development should be community-based, it should also be 'community-paced' to use the words of Dr Joe Riverson, director of the World Vision NGO in Ghana.

Provision for horizontal diffusion of innovation

As farmer organizations get involved in agricultural research and extension and in other means for improving their situation, it is important that horizontal, farmer-to-farmer channels of communication and learning be established. Visits of farmer-representatives between irrigation systems in Sri Lanka proved very beneficial, getting away from the otherwise 'vertical' orientation of communication and learning.

Attention to normative dimensions

In programme design, there is much attention given to structures and processes but little to norms. Indeed, the latter are regarded often as something to be avoided by professionals, as something outside the scope of development planning. Experience with establishing and maintaining farmer organizations in Sri Lanka, on the other hand, showed the importance of getting people to move away from predominantly selfish, individual and material orientations (though these cannot be and need not be entirely eliminated) and of reinforcing more generous and co-operative orientations to make them the dominant ones (Uphoff, 1992a).

Attention to bureaucratic reorientation

Getting rural people to take more responsibility for agricultural experimentation and improvement is often more dependent on having officials – extension agents, bank staff, research technicians, irrigation engineers and others – accept more interactive and accountable relationships with rural people than on persuading farmers to participate. The latter decisions are greatly influenced by farmers' perceptions of how willing and able bureaucrats and technocrats are to listen to and appreciate what less educated and lower-status people have to offer.

In Gal Oya, having discovered the importance of getting engineers and officials to change their thinking and behaviour toward farmers, it became apparent that this was not simply a precondition for farmers to become involved. Rather it is part of a process for increasing participation in rural development. Bureaucratic reorientation is best promoted by demonstrations of farmers' knowledge and capability, winning respect for farmers from their social 'betters'. An iterative process was observed in Gal Oya, where displays of initiative and intelligence by farmers gained some respect from officials, and this in turn encouraged farmers to show more capability, which again increased the respect accorded them by officials (Uphoff, 1992a).

These are some of the elements and methods for building a local organizational base under people-centred agricultural research and extension efforts. Rural people need to become themselves more empowered, with accountable leadership and able to deal collectively with persons from outside their communities, if we are to have effective and equitable farmer-extensionist-researcher partnerships.

Farmers' federations and food systems: organizations for enhancing rural livelihoods

ANTHONY J. BEBBINGTON

Federations and the farm: the limits of farmer-to-farmer extension

Responding to the challenges of enhancing rural livelihoods is beyond the capacities of most formal research and extension organizations as they are currently organized, as their focus is on production technology and 'messages'. In contrast, some farmers' federations concentrate on processing technologies, local institutional development and skill formation. The experiences of farmers' federations in Andean America suggest a range of lessons regarding research and extension and local organizations.

In the central province of Chimborazo in the highlands of Ecuador a long history of everyday resistance on feudal estates spilled over into a more strategic and organized struggle for land in the 1950s and 1960s. One

of the fruits of this peasant activity has been the steady formation of indigenous people's (Indian) farmer federations, of which there are now over thirty in the province.

These federations link together base organizations, generally at a parish or county level, uniting up to forty organizations. Much of their activity has revolved around literacy training, in which issues of social and cultural rights and the revalidation of ethnic identities were addressed as part of educational programmes. Much effort was expended in strengthening the internal management and negotiating capacities of base organizations, by forming leaders and providing basic training in land and community legislation, accounting and administration. In this they generally worked with the support of the local church and NGOs.

This politico-cultural action was combined with attempts to negotiate better public services for communities. Some such negotiation was direct with the state: the federations essentially absorbing administrative costs and facilitating member community access to public resources. Over time, federations began to negotiate funds, and began to deliver services to their members on the federations' own account (Bebbington, 1992). Agricultural development projects grounded in farmer-to-farmer extension activities were central to these project activities. These constitute the federations' own attempt to identify a regional resource management strategy, and had to respond to a situation of demographic increase on fragile sloping lands ranging from 3200 metres to over 4000 metres above sea level. Agriculture on these slopes is rainfed, with periods of summer drought; climatic risks are high and topsoils are easily disturbed.

Although some federations initially aimed to promote native technologies, the increasing inability of traditional practices to respond to heightened pressures on production in this environment, led federations to choose to promote knowledge about modern agricultural technologies among their members (new varieties, fertilizers, pesticides). The reasoning behind this strategy was largely that out-migration is the principal cause of cultural erosion and weakened social ties in communities, and that therefore the main concern of local R & E intervention ought to be to reduce migration by increasing farm incomes. The federations provided technical assistance and subsidized inputs to members, largely following the administrative models of public sector rural development and agricultural extension programmes. Their coverage and distribution of inputs was impressive in comparison with formal R & E services. Federations have thus moved towards the incorporation of modern technologies, the technologies of the 'cultural other' (as opposed to indigenous technologies), as part of a programme aimed at sustaining other intrinsically Indian practices (Bebbington, 1992).

Yet the strategy appears to have been economically and ecologically unsustainable. With currency devaluations, the cost of agrochemicals at the farm gate has risen dramatically. At the same time, in this particularly eroded environment, soil loss on unterraced slopes means the returns from the use of fertilizers have fallen, and will continue to do so until such erosion problems are addressed. Finally, farm units are very small, and for

constraints. The key ingredients of Landcare are its lack of structure, the primacy of land users in determining group directions and activities, the integration of conservation and production issues, the involvement of people other than farmers in groups and the extent to which groups assume responsibility for their own problems and resources. Landcare group activity often involves, and is complemented by, innovative approaches to monitoring land status (land literacy) and by participatory approaches to planning better systems of land management at farm and catchment scales.

'Community First' thinking means a change in focus: from transferring information to asking the right questions; from presenting to skilled listening and interpretation of feedback; from starting with research outputs to building upon the diverse knowledge and inputs of many stakeholders. Facilitating community synergy, assisting communities to work together to assume responsibilities for defining and tackling their own problems, can inform research and extension approaches at both the individual farm level and at the institutional level.

Creating learning systems: a metaphor for institutional reform for development

RICHARD BAWDEN

Learning how to learn

The increasing application of learning approaches to a wide range of human endeavours is releasing all kinds of creative responses to problematic institutional situations. Nowhere is this more welcome than in the practice of rural development. For far too long, the heart of development practice has been characterized by an irony which saps the energies and motivations of even the most enthusiastic practitioner: those very institutions that are established to facilitate societal change at one moment, invariably become its next major constraint.

The challenge for development is not to reject institutionalization, but to create a different kind of institutional organization which has the capacity to retain its abilities to facilitate, as well as respond to, change; one which is able to co-evolve in its relationships with the dynamic and complex environments in which it exists. As learning is the only process by which such a co-evolving relationship can be established and subsequently sustained, it is important that a learning approach to institutional and organizational development be explored.

This is the story of Hawkesbury College (the University of Western Sydney) and one attempt in Australia to bring a critical and systemic

learning approach to the process of institutional reform as the key to responsible rural development. The aim of such an approach is to create learning systems which are able to retain their abilities to be influenced by, as well as to continue to have a positive influence on, the circumstances which surround them: to create learning systems which create learning organizations through the synthesis of different ways of learning.

A context for institutional reform

The radical reform of educational or development institutions requires that we create flexible learning organizations. But even when we set out to institutionalize new laws, norms, rituals, shared beliefs and so on, the processes that we use invariably remain grounded in old norms and beliefs. This somewhat self-denying paradox is a prime example of a phenomenon of organizational development described as 'single loop learning' (Argyris and Schön, 1978):

> There is a single feed-back loop which connects detected outcomes of action to organisational strategies and assumptions which are modified so as to keep organisational performance within the range set by organisational norms. The norms themselves . . . remain unchanged.

If the prevailing norms are to be transcended in the name of genuine innovation and profound institutional reform, then there will need to be 'new sorts of inquiry which resolve incompatible organizational norms by setting new priorities and weightings of norms, or by restructuring the norms themselves' – the double loop learning concept (Argyris and Schön, 1978).

It is useful to imagine that organizations can themselves learn, and that accordingly, organizational development can proceed through both single and double loop learning strategies. This metaphor of the learning organization is useful for examining institutional reform and it can be further enriched through the use of another metaphor – the organization as a learning or inquiring system. It is this enriched systems metaphor that provides the context for the work that has been under way at Hawkesbury for the past dozen years or so.

What started out as an exercise in curriculum reform to incorporate new ways of learning about systems approaches to agriculture, has transformed itself into a pervasive process for creating learning systems for development – including its own! In this regard, the Hawkesbury experience is a deliberate exception to the observation of Simon (1967) that 'we do not in our colleges today, make use of *any* learning principles in a considered, systematic way. We do not design the college as a learning environment.'

The essence of learning systems

Learning organizations are collectives or communities of individuals who share experiences and understanding through co-operative learning and genuine participation in those events which affect them. For any organiza-

tion or community to learn, individuals must not only themselves be active learners, but they must also be committed to sharing that learning in ways which allow consensual understanding or meaning to be reached. Here then is the essence of the participative process through which 'people-centred development' is made possible through 'social learning concepts and methods' (Korten, 1984).

Here too lies the clue to the systems nature of the argument – the learning organization can be transformed into that of the learning or action researching system (Bawden, 1990). The nature of this sort of systems thinking needs to be carefully described for it relates not to the conventional idea of a group of individuals comprising a social system, but to a collaborative process of systemic learning; an 'ecology of mind' to use Bateson's (1972) graphic phrase. In this manner there is, as Checkland (1984) would describe it, 'a shift in systemicity from reality to the process of inquiry into reality' – from knowledge systems to systems of knowing or inquiring systems.

A model of learning which draws on a number of different intellectual traditions, is developed below. It represents a moment in the 'history of ideas' which has been flowing both with and from Hawkesbury's recent 'history of events' (Bawden, 1992a). Central to its logic is the notion that learning is the exploration of difference which must include differences in the learning process itself.

Of learning and differences

A useful point of entry into the theoretical framework which is informing the Hawkesbury learning systems approach is that of a 'cycle' of learning activities developed by David Kolb. The context for this lies in his definition of experiential learning as: 'the creation of knowledge through the transformation of experience' (Kolb, 1984). This process of transformation is conceptualized as a cycle comprising four different, though inter-related, activities. These see individuals systematically, if iteratively, finding out about situations in both 'concrete' and 'abstract worlds' and taking actions in those 'worlds' too (Checkland, 1981).

Whilst these concepts refer to the psychology of learning of individuals, learning is essentially a social act (Habermas, 1972). As part of the finding-out activities the learner frequently turns to accessing social knowledge, engaging in 'conversations' with written and/or spoken ideas, theories or philosophies. Similarly, the learner may engage in activities with others to learn some new and relevant practice. Three different forms of learning – propositional, practical and experiential – can therefore be recognized (Reason and Heron, 1986).

Habermas (1972) adds a vital perspective to these distinctions in proposing that people create knowledge for three fundamentally different motivations which reflect – a technical interest for prediction and control (human/nature interaction), a practical interest for understanding (human communicative interaction), and an emancipatory interest (social relations of power, domination and alienation). As this model allows us insights into

learning about how and why we come to know for knowing, know for doing and know for being, it also allows us to explore different levels of learning (Bateson, 1972). As part of our exploration of learning, it is necessary to learn about how we come to learn. Engagement at this second level of learning allows us to change the process of the first level of learning.

This multi-dimensional model of learning, positing different stages, styles, forms, levels, epistemological states and interest constitutions, suggests a complexity of the process which severely tests the adequacy of the simplistic concept of learning as a cyclical process. An alternative is to present the process as a dynamic system involving all of the above aspects related to each other in a densely interconnected and recursive – that is, always reciprocal and dynamic – manner. This notion of the inquiring or learning system must also embrace the concept of recursiveness between the different levels of learning (of seeing, interpreting and acting), as well as between different epistemic states, with each representing profoundly different assumptions about the nature of knowledge.

What we see in the world is thus both a function and an outcome of the way we interpret the world and *vice versa*. We can go further and include our actions within this schema: what we do in this world is a function and a outcome of the way we both see and interpret the world and *vice versa*. It is through individuals becoming conscious of the potential for learning about learning as the basis for learning how to learn differently, that reform can be institutionalized. So far the discussion has concentrated on the learner as an individual; it is now important to explore how individuals can collaborate as learning collectives – as institutions which learn.

Collaborative learning: consensus for action

The picture that has begun to emerge is of individual learners attempting to reconcile their abstract thoughts and theories, along with their imaginings and expectations, with their ordinary everyday experiences, through their own learning system. This notion must now be expanded to present learning systems in relation to groups of co-operating individuals sharing in this process as social beings. Here we have learning individuals conversing with each other as they collaborate to reach a common understanding in order to find agreement about what needs to be done in their shared everyday worlds of events and ideas. It is these critical conversations between learning people seeking to find some mutual understanding – some consensus about actions to be taken – that Habermas (1984) refers to as communicative action.

In this context of communicative action, three vital aspects of development through institutional reform suggest themselves from the experiences at Hawkesbury:

- Consensus for action, arises through conversations amongst those participants in events (current or projected) who are attempting to share common understanding about the practical circumstances in which they find (or could find) themselves;

- Consensus for action is difficult precisely because it is a function of the quality of those conversations, which itself is a function of the abilities of individuals to share their different experiences, different ways of understanding and different dispositions for action;
- Consensus for action must embrace exploration of learning differences in such a way that they can be creatively used both to maintain internal coherence within the collaborative learning system, as well as to develop and maintain appreciative relationships between the system and other systems in the environment.

From these perspectives, dynamic learning systems are characterized by what might be referred to as coherence through difference. Communities or organizations facing problematic situations will only retain their coherence if they are conscious of, and competent at dealing with, the differences between the individuals that comprise the group with respect to a host of issues surrounding the situation. Not the least of these issues is the very significant differences that can exist between such individuals in the way by which they might go about their learning.

Differences exist in the way different individuals experience their everyday worlds. They also exist in the ways by which meaning is constructed from these experiences. Individuals differ in the way they value particular knowledge and knowledge created in particular ways. Individuals hold particular epistemological stances – even though they might not know that they do! And each individual has particular notions about the nature of the world (ontology), about what is beautiful and ugly (aesthetics), about what is good and evil (morals), about how things make sense (logic) and about what is right and what is wrong (ethics).

If the various domains within the learning systems of individuals are the source of significant differences in style, form, states and so on, then the possibilities for difference when two or more individuals come together to seek consensual action for changes to shared events, must be many-fold more!

The challenge that faces creators of learning systems is to institutionalize ways of creating learning systems; to facilitate organized communicative actions which will encourage learners to explore both their own indigenous ways of knowing, as well as those of others, in ways that provide fresh insights into pervasive problems, such that the learning organization is now reconceptualized as the institutionalized learning system.

Institutionalized learning systems

The need to develop ways of thinking and acting systemically (or systemic learning) has been a central focus of the Hawkesbury approach (Bawden *et al.*, 1984). Systems methodologies can be used as vehicles for helping facilitate systems thinking by all involved with any complex and dynamic inquiry (Bawden, 1990). This is the reason for the adoption by the Hawkesbury faculty of action research as the predominant mode of inquiry – albeit with many variations, depending on the nature of the issues under

investigation, as well as the particular predilections and competencies of the various individual researchers.

Experience at Hawkesbury has revealed that it is not an easy task to encourage students, or any other 'client' learners for that matter, to adopt systemic methodologies, and this in spite of the fact that there is often general agreement that conventional ways of scientific inquiry are quite inappropriate, given the complexity and messiness of the particular situation at hand. Salner (1986) provides a most useful insight here in concluding that:

> Systems learning requires a certain way of thinking that is independent of the content of systems concepts.. (and) requires something more than presenting information and encouraging student problem solving. For general systems learning, with its emphasis on structures rather than on content, epistemic competence may be the most critical competence of all . . . student development is most likely to occur when mild pressure in the environment toward movement is consistently present so that the student cannot conveniently escape the kinds of confrontations that produce growth.

Here then is the key to institutional reform as the basis for sustainable development praxis: the judicious combination of a gently provoking practice with a comprehensive and multi-dimensional and systemic model of learning. This is the design framework for institutions as critical learning systems. The ultimate goal for those who make up institutional learning systems is to learn how to learn systemically!