Challenging The Populist Perspective: Rural People's Knowledge, Agricultural Research, And Extension Practice[1]

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ABSTRACT Recent trends in agricultural science have emphasized the need to make local people active participants in the research and development process. Working under the populist banner "Farmer First", the focus has been on bridging gaps between development professionals and local people, pointing to the inadequate understanding of insiders' knowledge, practices, and processes by outsiders.

The purpose of this paper is to expose the paradox of the prevailing populist conception of power and knowledge, and to challenge the simple notion that social processes follow straightforward and systemic patterns and can thus be manipulated with a transfer of power from outside to inside. The authors view "knowledge" as a social process and knowledge systems in terms of a multiplicity of actors and networks through which certain kinds of information are communicated and negotiated, and not as single, cohesive structures, stocks or stores. The guiding phrase is "the analysis of difference", which suggests that knowledge is multilayered, fragmentary, and diffuse, not unitary and systematized. It emerges as a product of the interaction and dialogue between different actors and networks of actors with conflicting loyalties who negotiate over "truth" claims and battle over contrasting images and contesting interests. The paper challenges those promoting Farmer First approaches to reassess how people in different agroecological and sociocultural contexts make sense of and deal with constraining and enabling processes related to research and extension; how they attempt, through recourse to various discursive means, to enroll one another in their various endeavors; and how they use relations of power in their struggles to gain access to and control of social and political space.

1. Introduction

Since the mid-1980s, the so-called *"Farmer First"* or "populist" perspective has gained widespread attention in rural development circles, enough to allow it to begin to challenge the conventional approaches of agricultural research and extension. Some proponents have gone as far as to term this change in thinking a "paradigm shift." These trends have emphasized the need to "listen and learn from the people" and to make local people active partners in the research and development process. The focus has been on bridging gaps between development professionals and local people, pointing to the inadequate understanding of *insiders'* knowledge, practices, and processes by *outsiders* (*cf.*, Chambers *et al.*, 1989). Undoubtedly, these are steps in the right direction. Their impact has already been

felt through the work of many nongovernmental organizations (NGOs) and growing numbers of universities, international and national agricultural research centers, and national agricultural extension programs.

While many hail the *Farmer First* thinking as a welcome alternative to top-down, technically-driven research and extension, it is not without its detractors. These critics charge that such an approach represents a form of "naive populism" that fails to address the sociocultural and political economic dimensions of knowledge creation, innovation, transmission, and use within rural societies and scientific organizations. Moreover, "supply-led populism" still assumes that development requires intervention or management by outsiders, even if it is more in line with farmers' needs than previous modernization approaches to development. It is difficult to deny the connotation this thinking carries of a *transfer of power* from outside aimed at creating countervailing forces inside. It is not surprising, therefore, that, when applied, populist strategies encounter the same sorts of problems as other interventionist programs. No matter how firm the commitment, the concept of power*ful* outsiders helping power*less* insiders is always present.

The attempt to "blend" or "incorporate" local knowledge into existing Western scientific procedures assumes that rural people's knowledge (RPK) represents an easily definable "body" or "stock" of knowledge ready for extraction and incorporation. The critics point out, however, that rural people's knowledge, like Western scientific knowledge, is always fragmentary, partial, and provisional in nature. It is never fully unified or integrated in terms of an underlying cultural logic or system of classification. Moreover, knowledge is embedded in and emerges out of a multidimensional universe in which diverse cultural, economic, environmental, and sociopolitical factors intersect and influence one another. The process takes place on the basis of existing conceptual frameworks and processes and is affected by various social contingencies, such as the capacities, experiences, interests, resources, and patterns of social interaction characteristic of the particular social group or groups of individuals. Finally, knowledge, whether "indigenous" or "scientific", is inclusive in the sense that it is the result of a great many decisions and selective assimilations of previous beliefs, values, ideas, and images, but at the same time exclusive of other possible frames of conceptualization and understanding. Hence, it is not an accumulation of "facts" but involves ways of comprehending the world: knowledge is always in the making.

In this paper, the populist perspective on agricultural research and extension practice, commonly referred to the *Farmer First* approach, is examined in light of recent research into the complex questions concerning the social construction of knowledge and relations of power. Its objective is to expose the paradox of the prevailing populist conception of power and knowledge, and to challenge the simple notion that social processes follow straightforward and systematic patterns and can thus be manipulated with a transfer of power from the outside to the inside.

The following sections expand on this discussion, exploring the theoretical implications of the growing challenges to the certainties of Western scientific thought, the consequences of taking a socioculturally differentiated view of scientific and rural peoples' knowledges (*i.e.*, epistemic and ontological discourses), the methodological challenges inherent in a reevaluation of the theory of knowledge, and the implications of taking a detailed, reflexive look at encounters between groups and individuals involved in agricultural research and extension. The paper concludes with some preliminary reflections on the opportunities for productive engagement between formal agricultural science and rural people.

2. Contrasting Representations of Rural People's Knowledge

In the scientific literature, Rural People's Knowledge (RPK) is presented by observers in three contrasting ways:

1. RPK is "primitive", "unscientific", "wrong", *etc.* Formal research and extension must "educate", "direct", and "transform" rural people's production and livelihood strategies in order to "develop" (*i.e.*, modernize) them.

2. RPK is a "valuable and underutilized resource" and needs to be intensively and extensively studied, and "incorporated" into formal research and extension practice in order to make agriculture and rural development strategies more "sustainable."

3. Neither RPK nor formal Western science can be regarded as unitary "bodies" or "stocks" of knowledge. Instead, they represent contrasting multiple epistemologies produced within particular agroecological, sociocultural, and political economic settings. The interaction of RPK with current research and extension practice must address fundamental issues of power and need in development.

Each of these representations defines the concept of "development" in a distinct way. In the first instance, development is seen as a modernizing force or process, one that acts to transform traditional practices. This remains the conventional thinking in many settings of agricultural research and extension. The superiority of "rational science" is assumed and the pursuit of change (development) is derived almost exclusively from the findings of the research station and transmitted to the farmer through hierarchical, technically-oriented, extension services. Farmers are seen as either "adopters" or "rejectors" of technologies, but not as originators of either technical knowledge or improved practice. This is generally known as the "transfer of technology" (TOT) model or approach (Chambers and Ghildyal, 1985; Sachs, 1992).

Since the late 1970s, the TOT view has been challenged by the advocates of the second perspective. This position sees the starting point of development as an active and equitable partnership between rural people, researchers and extensionists (*cf.*, Chambers, 1983; Farrington and Martin, 1988; Chambers *et al.*, 1989; Reijntjes *et al.*, 1992). Outsiders are viewed primarily as catalysts or facilitators of the open exchange of ideas and information between various interested groups (*e.g.*, farmers, local leaders, researchers, extensionists, *etc.*). Proponents of this populist approach emphasize the rational nature and sophistication of rural people's knowledge and believe that knowledge can be blended with or incorporated into formal scientific knowledge systems. They argue that if local knowledge and capacities are granted legitimacy within the scientific and development communities, existing research and extension services will pay greater attention to the priorities, needs, and capacities of rural people and, in the end, achieve more effective and lasting results (Thomas-Slater *et al.*, 1991; Thompson, 1991, 1993a). Over the past decade, a good deal of the work in farming systems research (Ashby *et al.*, 1987; Collinson, 1987; Lightfoot and Nobel, 1992), agroecology (Altieri and Yurjevic, 1990), agroecosystems analysis (Conway, 1986), rapid and participatory rural appraisal (Khon Kaen, 1987; McCracken *et al.*, 1988; Chambers, 1992b, IIED 1988-present) and other approaches has continued to develop and promote different aspects of this thinking.

The original focus of the populists was on indigenous *technical* knowledge (ITK), a rhetorical emphasis indicative of a rather narrow interpretation of local people's knowledge and abilities that concentrated attention on their role in agricultural production (Howes and Chambers, 1979; Biggs and Clay, 1981). In recent years, this perspective has been expanded to consider indigenous knowledge as *cultural* knowledge producing and reproducing mutual understanding and identity among the members of a farming community, where local technical knowledge, skills, and capacities are inextricably linked to nontechnical ones (*i.e.*, cultural, ecological, and sociological factors) (Richards, 1985, 1986; Moock and Rhoades, 1992; Hobart, 1993). In this way, "ITK" becomes "RPK." Although this change is still occurring, it appears that this broader conception of indigenous knowledge is gaining wider currency.

This change has involved the development and/or modification of methodologies for examining and supporting local knowledge, and changes in attitudes resulting in professional and institutional transformation.[2] These methodological and institutional changes now under way are seen by some as part of a broader paradigm shift in the direction of greater empowerment of local people, local-level adaptive ("bottom-up") planning and low external input agriculture (Pretty and Scoones, 1991; Moris, 1991; Warren 1991; Reijntjes *et al.*, 1992; Cornwall *et al.*, 1992; Thompson, 1993a).

This emerging *Farmer First* or populist paradigm has had considerable success over the past decade in challenging the predominance of the modernization paradigm, in which RPK has been discredited, ignored or generally undervalued (*cf.*, Rhoades, 1989; Röling and Engel, 1989; Scheidegger *et al.*, 1989; Norman and Modiakgotla, 1990; Warren, 1991). A number of centers of the Consultative Group for International Agricultural Research (CGIAR) have adopted elements of this approach in their work (although the bulk of their activities remain firmly set within the conventional TOT framework; *cf.*, TAC, 1993).[3] The same applies to some national agricultural research and extension programs.[4] Nongovernmental organizations (NGOs) have been particularly innovative in promoting this approach (Clark, 1991; Pretty and Chambers, 1992; Shah, 1992; Farrington *et al.*, 1993), one prominent example being the programs of World Neighbors (Bunch, 1985, 1990; Gubbels, 1990, 1992; Stolzenbach, 1992).

Critics of the populist perspective argue that the attempt to blend or integrate local knowledge into existing scientific procedures falsely assumes that RPK represents an easily definable body or stock of knowledge ready for extraction and incorporation. Such a conception is the result of an objectivism that assumes "the world is composed of facts and that the goal of knowledge is to provide a literal account of what the world is like" (Knorr-Cetina, 1981: 3). The commentators point out that RPK, like scientific knowledge, is always fragmentary, partial, and provisional in nature. It is never fully unified or integrated in terms of an underlying cultural logic or system of classification (*cf.*, Fre, 1992; Salas, 1992).

The appreciation of the dynamic interplay of these multiple, diffuse knowledges requires a multidimensional analysis of rural livelihoods and political ecological change. Such an analysis inevitably calls into question the validity of a unified view of rural people's knowledge and demands that we interpret indigenous knowledge as being constructed through rural people's practices as situated *agents*: "as *agents*, because they are actively engaged in the generation, acquisition, and classification of knowledge; and as *situated* agents because this engagement occurs in cultural, economic, agroecological, and sociopolitical contexts that are products of local *and* non-local processes" (Bebbington, 1992: 2). To remove local knowledge from the web of meaning and influence in which it arose and attempt to fit it into the constrictive framework of Western scientific rationality is likely to lead to significant errors in interpretation, assimilation, and application (Salas, 1991; Fairhead and Leach, 1992; Hobart, 1993).

To highlight how these differences in

conceptualization can lead to misinterpretation of local practices, Richards (1989: 40) contrasts the observed "plan" of complex intercropping systems with the actual sequential "performance" of farmers' actions. Simple observation of crop layout potentially may be interpreted as a farmer's scientifically rational, carefully planned response to the problems of interspecific competition, and weed and pest control in the cropping system, whereas the crop layout is in fact a series of contingent responses to unfolding events through the season. In Richards' words:

> The crop mix . . . is not a design but a result, a completed performance. What transpired in that performance and why can only be interpreted by reconstructing the sequence of events in time. Each mixture is an historical record of what happened to a specific farmer on a specific piece of land in a specific year, not an attempt to implement a general theory of interspecies ecological complementarity . . .. Researchers are looking for combinatorial logic in intercropping where what matters to the . . . farmer is sequential adjustment to unpredictable conditions. It is important therefore not to confuse spatial with temporal logic — not to conflate plan with performance.

In short, researchers and farmers use different frames of reference when thinking about agriculture. The researchers' thinking is "out of time"; they have the luxury to run their experiments in controlled environments, even when conducting on-farm trials. By contrast, the farmers' performances can only occur "in time", where they are embedded in particular agroecological and sociocultural contexts that give rise to a plethora of changing conditions to which the farmers must make a series of rolling adjustments. For the researcher, then, what counts is replication and comparison. For the farmer, what counts is fitting available resources to changing circumstances well enough to make it through the season.

Attempts to "scientize" rural knowledge can also act to devalue it. Thrupp (1989: 146) observes how agroforestry, a practice of rural farmers since agriculture began, has been modified and repackaged by scientists, and transmitted back to farmers through extension systems. The repackaging has occurred to such an extent that extension agents and researchers are often unable to recognize "traditional" agroforestry practices since they do not share the same characteristics as the recommended packages.

Institutional analysis of participatory approaches requires a detailed analysis of the roles of different actors. The superficial notion of "participation" as espoused by many *Farmer First* advocates does not reveal the political and sociological complexity of settings where farmers interact with researchers and extension workers. These social interfaces, according to Long (1989; Long and Long, 1992), are critical points of intersection or linkage between different social systems, fields or levels of social order where structural discontinuities, based on differences of normative value and social interest, are most likely to be found.

Agricultural research and extension involves encounters between individuals or groups representing different interests and supported by different resources. Typically, these interacting parties will be differentiated in terms of relations of power. Analysts of social interfaces attempt to reveal the dynamic and emergent character of the interactions taking place and to show how the objectives, perceptions, priorities, and relationships of the various parties are influenced and reshaped as a result of the interaction. In addition, they aim to explore how these interactions affect and are affected by individual actors, institutions, market influences, and other structural forces that lie beyond the interface situation itself. This may be termed the "*Beyond Farmer First*" (BFF) perspective.

This third position by no means rejects the major tenets of the *Farmer First* (FF) position; a similar agenda of active participation, empowerment, and poverty alleviation is in mind. However, this perspective points to where the FF approach lacks a certain analytical depth and presents a more radical program that incorporates a politically differentiated view of development — where factors such as gender, ethnicity, class, age, and religion are highlighted — with important implications for research and extension practice.

The populist perspective of many FF adherents and the emerging alternative views of those wishing to move the debate *beyond Farmer First* can be compared in terms of their basic assumptions, processes of interaction, the roles assigned to the various actors, and their styles of investigation. Before beginning this comparison, however, it must be said that these perspectives or schools of thought should not be seen as polar opposites, but rather as representations of points on a continuum, and different ways of viewing the world that are more, or less, present in different authors' writings and different institutions' programs and policies.

First, with regard to their assumptions, FF promoters sometimes present the view that farming communities often share common goals, interests, and access to resources (including information), and that local knowledge is unitary, systematized, and available for assimilation and incorporation with Western scientific knowledge. The emphasis is on information transfer and linkage between the different parties, who are seen as knowledge "producers", "disseminators," or "utilizers." The BFF advocates counter that both local and non-local people hold many divergent, sometimes conflicting interests and goals, and have differential access to resources. Knowledge, which emerges as a product of the discontinuous, inequitable, discursive, and non-discursive interactions between different "actors" and "networks" through which different types of

information are communicated and legitimated, and between which there is often a serious lack of understanding, is seen as being fragmentary and diffuse.

Second, the processes through which different interactions take place are viewed quite differently by the FF and BFF camps. For the populists, the emphasis has been on finding consensus solutions to identified problems through managed interventions. Local people may be actively involved in the diagnostic analysis of priority problems, and in planning and implementation of specific projects (*e.g.*, rehabilitation of irrigation structures, formation of marketing cooperatives, *etc.*). In contradistinction with this perspective, the guiding notions of the BFF promoters are conflict resolution and negotiated agreements between different interest groups vying for control of resources and power. This may occur through a process of adaptive learning and planning with dynamic and flexible implementation of negotiated outcomes.

Third, the roles of the "insider" and "outsider" are defined in contrasting terms by FF and BFF partisans. While the populists have long espoused the role of the researcher or extensionist acting as that of a "facilitator" or "initiator" or "catalyst", and that of the local person as "partner" or "analyst", in reality, most FF practitioners have remained (hidden) information collectors and documenters of RPK, and designers, planners, and managers of interventions (in some cases with the active involvement of local people and in others without it). Those wishing to move beyond *Farmer First* accept these definitions of "insiders" and "outsiders" in principle, but believe they will only be fulfilled in practice when all actors consider implementation as a transaction *process* involving negotiation over goals, struggles over boundaries, battles for social and political space to maneuver, and means between parties with conflicting or diverging interests.

The final difference between the FF and BFF approaches is in their styles of investigation. Recent movements to the contrary, the populists have followed a "positivist" agenda centered on structure and systematic organization determined by controlling forces. This entails a hard-systems approach focusing on discrete elements and hierarchical patterns. Most farming systems research (FSR), agroecosystems analysis (AEA), and rapid rural appraisal (RRA) fall within this framework. The BFF agenda, by contrast, concentrates on the actor. It involves a soft-systems approach centered on networks, relations of power, and dynamic "performances." Participatory action research (PAR) and increasingly, farmer participatory research (FPR), participatory technology development (PTD), and participatory rural appraisal (PRA) all share elements of this new style of investigation. The promoters of these and other related approaches are helping to push the populist agenda beyond *Farmer First.*

In conversation, some FF promoters acknowledge that they are well aware of the points put forward by the BFF critics, but claim they have chosen to remain silent on them for strategic reasons. They imply that they can achieve certain goals and changes in the thinking of certain key agricultural agencies and institutions indirectly, and that to be too explicit about cultural contexts and relations of power may in fact inhibit or dissuade the very audience they are trying to influence. For example, while a FF proponent is trying to convince crop scientists of farmers' experimental skills, to be told that actually farmers link their practices to particular cosmologies may take the scientists back to thinking that farmers are "primitive" and "unscientific" after all. Hence, they argue that there is a strategy underlying the populist alternative that should be recognized. For these FF advocates, then, the issue is under what contexts is it appropriate to break these strategic silences and under what contexts is it not?

While the logic behind this argument is beyond dispute, the fact that few FF writers have described this strategic thinking in clear terms in any of their writings over the past decade has left them open to charges of superficial analyses and naive activism.[5] Moreover, it can be contended that while the populist rhetoric may win over some mainstream supporters, there is still a large degree of "preaching to the converted" about it.

Recent commentaries and policy statements by some of the most influential thinkers and agencies in the field reveal just how little impact these unsophisticated FF arguments have had on some quarters in conventional agricultural research and extension (*cf.*, TAC, 1993). For example, Norman Borlaug (1992: 2), the Nobel laureate and plant geneticist, writing on the state of agriculture in Africa, has expressed the skepticism of many within the scientific establishment towards *Farmer First* approaches in no uncertain terms:

> Development specialists . . . must stop "romanticizing" the virtues of traditional agriculture in the Third World. Moreover, leaders in developing countries must not be duped into believing that future food requirements can be met through continuing reliance on . . . the new, complicated . . . "low-input, low-output" technologies that are impractical for farmers to adopt.

Would a more theoretically rich and politically sophisticated argument by the populists about knowledge, power, research, and extension help convince skeptics such as Borlaug that there is no simple "techno-fix" just as there is no simple "participation-fix" to the agricultural problems of the world's resource-poor farmers? We believe it would, particularly if it is accompanied by realistic methodological and institutional alternatives.

3. Power and Knowledge: The Theoretical Setting

How do cultural, economic, and political relationships and differences affect the generation, innovation, and transmission of knowledge? How do we know what we

know?

Every system of knowledge, agricultural science and RPK included, has its own epistemology, its own theory of what constitutes and what counts as knowledge. The shortcomings of positivist, rationalist, Western scientific epistemologies have been widely debated and discussed for many years (*cf.*, Quine, 1953; Kuhn, 1962; Feyerabend, 1975; Goodman, 1978; Hesse, 1980; Rorty, 1980, 1982, 1989; Keat and Urry, 1982; Hacking, 1983; Rajchman and West, 1985; Harvey, 1989; Sayer 1992; Uphoff 1992b). This critique undermines the assumption of a positivist view of investigation that sees knowledge as a tangible stock, body, or store to be tapped, extracted, and documented.

It also suggests that the process of knowing should be seen as interactive, value-bound, and context determined, rather than detached, value free, and independent of context. The human mind is not simply a "mirror" that accurately reflects a reality "out there" (Rorty, 1980). Interpretation, translation, and representation are *social acts* that cannot be assumed to be neutral and "objective." Rather than talking of "things", we should begin to talk about the way we talk about things (Quine, 1953). While we cannot escape the strictures of our own language (Derrida, 1978) or our own ways of reasoning (Hacking, 1983), we can acknowledge that these provide us with only a partial views of our world and that there is a multiplicity of other equally valid ones.

It is also important to ask how power affects knowledge. The post-structuralist French philosopher Michel Foucault observes that "*the criteria of what constitutes knowledge, what is to be excluded and who is designated as qualified to know involves acts of power*" (Foucault, 1971). Long and Villareal (1992) point out that "*power differences and struggles over social meaning are central to an understanding of knowledge processes.*" Forms of discourse come into being, evolve, and survive or decline because they are used by people in a dynamic interplay with one another and with their physical environment. This approach — seeing pattern in each new action and innovation in the repetition of past patterns — has now been adopted by a generation of social theorists from Foucault (1971, 1973) to Bourdieu (1977) to Giddens (1979, 1987) to Habermas (1987) to Sayer (1992).

To explain the direction of change it is necessary to introduce power into the equation and explore the relationship between the character of domination by certain groups and the evolution of discourse. The purpose of studying knowledge systems in apparent conflict, whether resource poor farmers and extensionists in the Andes (Salas, 1992) or pastoralists and extensionists in the Horn of Africa (Fre, 1992) or farmers and agronomists in the Himalayas (Jodha and Partap, 1992), is to understand those factors within societies that shape and influence discourse in locally relevant terms, and, at the same time, present a countervailing force against a dominant or potentially disempowering alien discourse of formal research or extension.

Analyzing the links between relations of power and local people opens up a difficult problem of scale; the extent in time and space of things being studied. Local social forms (the rituals or narratives of a particular place) deserve to be given special weight, yet relations of power can never be understood within narrow local boundaries. No knowledge system can exist in a cultural, economic, or political vacuum. Knowledge of any form, like the language systems through which it is transferred and transformed, must always confront other knowledge systems, whether they are those of development agents or neighboring societies. It is within a context of contestation, through a process of dialogue and exchange, that innovation and knowledge creation has and will always operate. It is in this dynamic social setting that research and extension is practiced.

As Salas (1991; 1992) has pointed out, impressions of local people as passively receiving external knowledge (and ideologies), or at best as reacting to external initiatives, are widely distributed in academic writings. The image of peasant culture as inert is equally common, and very misleading. Peasant farmers are not necessarily trapped by patterns of domination. Those labeled as "powerless" or "subjugated" or "repressed", within specific circumstances, are not always passive victims and may be involved in various forms of active resistance. Conversely, the "powerful" are not always in complete control of all aspects of social life, and the degree to which they themselves are influenced and affected by the "powerless" should not be underestimated.[6] Moreover, reifying the power of domination in socially deterministic terms, as many *dependistas* and political economists have done, only serves to reinforce the notion that nothing will change unless the whole systems changes. Processes of negotiation, compromise, and resistance exist and are important in instigating change, often incrementally, occasionally radically. Power is real, but there is "room for maneuver" and "space for change" (Scott, 1985, 1990; Long and Villareal, 1992).

4. The Social Construction of Knowledge

A broader view of knowledge, its generation, transmission, and application, suggests a range of issues of importance for agricultural research and extension. What is the relationship that people have to their knowledge? How is local agricultural knowledge generated? How is knowledge shared and transmitted? As Fairhead (1990: 23) asks:

> Do people "know", "believe", "think" or "suppose" all this [indigenous technical knowledge] and how much disagreement is there? How do farmers

come to "know", and how do they become confident in what they know? Who talks to whom about it?

Local Knowledge Construction

Knowledge is held, controlled, and generated by different people in a society. A differentiated view of knowledge generation is an essential component of understanding RPK. The simplifications inherent in the labeling of "farmers'" (or indeed "rural people's") knowledge may present problems. Who is the farmer whose knowledge should be put first? Male or female? Rich or poor? Old or young? Landed or landless? Settler or migrant? Knowledge is socially and politically constructed and requires a differentiated analysis that allows an exploration of its multiple forms (Matose and Mukamuri, 1992; Sikana, 1992). Whether we contrast Andean and Western views on potato production (Salas, 1992) or Aboriginal and European understandings of Australian range management (Russell and Ison, 1991), we must recognize that multiple constructions of knowledge exist and that their generation, transmission, and application occur within particular agroecological, sociocultural, and political economic settings.

Understanding the processes of agricultural innovation and experimentation has become an important research focus among social scientists interested in agriculture. Farmer experimentation is promoted as a process to encourage a more participatory partnership between researcher and farmer (*cf.*, Richards, 1985, 1992; Rhoades, 1987; Millar, 1992). But how does local innovation occur? How apparent are farmer's "experiments"? Fairhead (1990) argues that knowledge is often expressed in the private domain, that what goes on is perceived by farmers as "normal" and unsurprising, and that descriptions in terms of "creativity" and "innovation" are misleading. Farming practices may be expressed (to outsiders especially, but also other locals) in terms of ideal type descriptions (*e.g.* of rotations, cropping patterns, *etc.*). These can give a false impression, as they may not reflect the wide variety of actual practices arising not out of a cognitized, rational "plan", but through a series of contingent responses to uncertain ecological and social circumstances (as we saw with Richards' description of a farmer's "performance"). They may also involve acts of secrecy and reactions to perceived threats, including sorcery, where an individual or group presents false or misleading information in order to protect ideas or innovations from others or from powerful magical forces (Fairhead, 1990; Huizer, 1991). Such unplanned performances and "hidden transcripts" sometimes make it difficult for farmers to articulate responses to questions such as: "what is your crop rotation?"

A range of different types of farmer experiments can be identified — curiosity, adaptation, problem-solving, and peer pressure experiments (Rhoades and Bebbington, 1988; Millar, 1992). Various forms of investigative process are used, from deductive hypothesis testing to inductive analysis. In each case, interpretation is influenced by context — social, economic, and religious. It is vital that formal science engages with farmers' experimental performance, as those farmers' experiments that involve empirical testing and progressive learning offer key opportunities for productive partnership with formal science (Richards, 1989; 1992). A growing literature offers examples of where farmer experimentation and formal science have interacted productively (*cf.*, Richards, 1985; Bunch 1990; Pimbert, 1991; Reij, 1991; Kerr and Sanghi, 1992; Diop, 1992). Although admittedly these examples still represent complementarity within domination (Fairhead, 1990) and supply-led rather than demand-led populism (Richards, 1990).

The Transmission of Knowledge

Simply asking people, or inferring particular structures of knowledge from observation may be inadequate methods for understanding. Knowledge is bound up with action. But what people do is not necessarily what people consciously "know." Knowledge may be articulated in many ways. In some instances, explanations for practices may be incompletely articulated or idealized; in others, myths or metaphors may be the most significant mode of transmission (*cf.*, Fre, 1992; Jodha and Partap, 1992; Millar, 1992; Salas, 1992). For example, van der Ploeg (1989: 148-9) describes how Andean farmers, confronted with a huge variety of different agroecological conditions, observe, interpret, evaluate, cultivate, and improve each of their plots using an extensive cluster of bipolar and metaphorical concepts:

> The distinction *fria/caliente* (cold/hot), for instance, is used to characterize certain aspects of what we would call soil fertility. It relates — but not in an exact or unilinear way — to the amount of nutrients and humus in the subsoil. *Dura/suavecita* (hard/soft) is another conceptual pair: it refers to the degree to which the soil has been tilled in previous years. It also communicates another important meaning, *i.e.*, the degree to which the particular plot has been "cared for" and therefore the degree to which the plot may be considered as "grateful". . .. These and other concepts are not unequivocal, nor do they lend themselves to precise quantification. They cannot be built into nomological models of the kind used in applied science, and technology development . . .. Yet their inaccurate character does not prevent farmers from establishing fairly exactly the overall condition of specific plots . . .. [In fact,] it is precisely the vagueness or "imprecise" character that allows for interpretation and change.

Knowledge is not evenly distributed. Different individuals are recognized as "specialists" in particular fields and are key in the transmission and interpretation of

knowledge within a community or family (Swift, 1981; Go and Go, 1992; Winarto, 1992). The dynamics of this transmission has a clear political dimension: who controls the flow of information and who imposes an interpretational gloss on its transmission can influence other people's productive activities.

Agricultural innovations do not spread according to a simple diffusion model of technology transfer (Rogers, 1983). Knowledge transmission is not based on simple communication channels, conduits, or linkages (Havelock, 1969). It involves human agency and occurs within socially and politically constituted networks of different actors, organizations, and institutions (Long and Villareal, 1992; Uphoff, 1992a, 1992b). Thus communication arises through the discontinuous, diffuse, value-bound interactions of different actors and networks, the "encounter of horizons" — a process of both interpretation and negotiation (Habermas, 1987).

Exploring the sharing, spreading, and transformation of local knowledge is a key research theme of vital importance to extension practice (Röling and Engel, 1989; Röling, 1992). Constructing historical biographies of particular crops opens up insights into this process (Box, 1987), as does the diagramming of networks of information exchanges. Examining this in relation to the social networks of different actors and institutions (farmer experimenters, extension agents, research stations, markets, *etc.*) demonstrates the importance of social context and power relations in patterns of knowledge transmission (Long, 1989; Long and Long, 1992; Long and Villareal, 1992).

Rural peoples' knowledge transmission may be hidden or muted, affected by differential access to and control over public discourse. Scott (1990) suggests an approach to the investigation of such knowledge transmission that compares the "hidden transcripts" of the weak and the powerful in relation to public proclamations. Such hidden transcripts may be expressed openly, but in disguised form, through rumor, gossip, folktales, songs, gestures, or jokes. It is only through such forms of communication that hidden voices can be given some countervailing force against more powerful actors.

In order that agricultural extensionists and researchers can engage in meaningful dialogue with farmers, they must recognize the complexities of socially and politically differentiated nature of knowledge generation and transmission and explore methodologies that takes this into account.

5. Rural People's Knowledge and Agricultural Science: Prospects for Collaboration

Rural people's knowledge is often characterized as highly specific and particular, with knowledge emerging simply from localized, practical experience. This characterization is contrasted with agricultural science, which is seen as theoretically based, providing objective, generalizable, propositional knowledge. Following the long-term philosophical bias in favor of theoretical knowledge over practical knowledge, agricultural science is thought to show "superior" qualities (Hacking, 1983). This characterization has resulted in the domination of science over RPK (Marglin and Marglin, 1990). RPK is thus relegated to a role appropriate for the slow process of local adaptation of technologies, while agricultural science is regarded as superior at technological innovation and wider spread (Farrington and Martin, 1988).

Previous sections of this paper have demonstrated that this simplifying contrast between RPK and agricultural science is inadequate. Both RPK and agricultural science proceed with context determined, normative, experiential, and theoretical knowledges, reinforced by continuous interactions between theory and practice (Hacking, 1983).

The problem is that rural people's conceptual frameworks are often hidden in studies that divide up knowledge into "bits" that relate to separate resources, geographical units or social groups. RPK is often seen as a useful source of particular "facts" or "classifications" that are subsequently interpreted within a theoretical framework derived from agricultural science (Fre, 1992; Sikana, 1992). Studies that do not compartmentalize RPK in this way show that rural people do theorize about agroecosystem processes and dynamics (Fairhead and Leach, 1992). Such theories may be locally situated (Van der Ploeg, 1989) and articulated within conceptions of local cosmologies (Millar, 1992), but, from our reading of the literature and our own experiences, we suspect that general conceptual frameworks that influence action also exist.

Studies that explore the dynamics of farmer experimentation also show that rural people empirically examine alternatives leading to progressive learning. RPK is thus not only about the relatively static, finely tuned adjustment of historically well established "indigenous technologies", nor is RPK simply the collection of a vast array of highly particular, socially and environmentally constructed knowledges. RPK, like agricultural science, can be involved in cumulative exploration of agricultural alternatives, employing progressive, adaptive learning through hypothesis formulation and the application of replicable methodologies. In other words, some elements of farmers' science show strong parallels with conventional, positivist, empirically-based scientific approaches. A well established, durable process of experimentation exists that offers the potential for articulation with formal agricultural institutions (*cf.*, Richards, 1992, for rice farming in Sierra Leone; Millar, 1992, for cereal and tuber farming in Ghana).

RPK and agricultural science are both general and specific, theoretical and practical, value-laden and

context bound, and influenced by relations of power. The critique of positivist science makes redundant the dichotomy between "traditional" (inferior) and "modern" (superior). Increasingly, current agricultural science thinking is being seen as another, dominating form of "tradition" (Gubbels, 1992).

Science and RPK are thus not so different, elements of each may be incommensurable, but commonalities in process and output clearly exist. For formal research and extension to engage with local knowledge systems, however, requires a leap of imagination: the need to enter into the world of farmer ideas, representations, and performances and to develop communication approaches that allow dialogue between different "languages." Salas (1989: 3) comments:

> [The extensionist/researcher must discover] the meaningful categories that organize and conceptualize the concrete aspects of life. The insights gained . . . can be the foundation of a partnership for an exchange of knowledge and experiences which can mobilize creative forces on both sides . . ..

The future beyond *Farmer First* lies in exploring this common ground and discovering the rich opportunities for these creative exchanges. This implies a number of key methodological challenges for the both the practice agricultural science and for the exploration of RPK (Cornwall *et al.*, 1992; Drinkwater, 1992).

6. Methodological Challenges

If knowledge is not discrete, uniform, and tangible, but constructed, negotiated, and contested in varying social and ecological settings, then questions of *how* we learn about rural peoples' agriculture become all important. The theoretical reevaluation of the nature of knowledge explored in previous sections suggests a number of important methodological challenges. Indeed the emerging critique of positivist views of knowledge puts methodological concerns center stage.

In the past, methodologies have concentrated on positivist ways of describing farming systems. The study of farming systems has included the examination of indigenous agricultural practice and technical knowledge, but largely within a framework specified by scientific analysts and their own frameworks. Early FSR formulations saw a more or less linear progression from problem and opportunity diagnosis to technology design, adaptation, and verification. Farming Systems Research, Agroecosystems Analysis, and other allied methodologies have attempted to describe the boundaries, components, and linkages in farming systems (Conway, 1985, 1986; Tripp, 1991). The "hard systems" approaches have concentrated on *what* are farming systems and *what* are the emergent properties of such interactive systems. Methods of investigation have assumed that a picture of reality can be apprehended through examining the diversity of physical, social, and economic components. By exploring how farming systems work, it is assumed that limitations and opportunities for technological development can be found (Collinson, 1987; Biggs, 1989).

The past decade has seen a range of innovations that have extended the rather limited methodological repertoire of early FSR, particularly in the area of qualitative and cost-effective research techniques (notably Rapid Rural Appraisal and similar approaches). The fundamental question of *how* we come to understand farming systems has not featured much in this methodological debate, however. Instead, the debate has concentrated on the elaboration of techniques and tools for the efficient extraction of information. Methodological discussions have rarely tackled the difficult questions surrounding the influence and role of the researcher in the research encounter, the analysis of difference, or the methods needed to explore local perceptions and representations.

The broader critique of positivist scientific theory and practice poses a number of awkward methodological questions, undermining the conventional certainties of scientific method. Today, alternatives are emerging from several convergent strands of thinking. For example, "soft systems" approaches are challenging the hegemony of "hard systems" analysis (Checkland, 1984; Bawden, 1991; Uphoff 1992b), overturning the assumptions of positivism and opening the way for an alternative, "naturalistic" approach to scientific inquiry (Lincoln and Guba, 1985). There is also an increasing awareness of agency in research encounters (researcher-farmer, researcher-reader, *etc.*), which highlights the need for reflection on the context of research and extension activities (Long 1989; Drinkwater, 1992; Long and Villareal, 1992). Finally, an explosion of methodological experimentation with performative approaches (diagramming and visualization, theater and song, *etc.*) has led to a reexamination of whose knowledge counts, who carries out the analysis and whose representation is recorded (Fabian, 1991; Chambers, 1992b; Cornwall *et al.*, 1992; Shah, 1992)

The boundaries between researcher, extensionist, and farmer are being broken down by these changes in methodological practice. The researcher is no longer assumed to remain detached, neutral, and invisible while administering questionnaires, conducting on-farm trials, or "participant observing." With an interactive, dialogical approach, the researcher acts as a catalyst, a facilitator, and a provider of occasions with learning occurring continuously. Increasingly, the interactions of research and development actors are the subject of reflection (Long and Villareal, 1992; Drinkwater, 1992). Of particular methodological interest are reflections on the role of the researcher in the research encounter. How does s/he influence the research encounter? How visible is s/he? Whose knowledge, perceptions, priorities are "made known" and taken seriously? Whose are not? Why? (Schrijvers,

1991; Bebbington, 1992, 1993; Drinkwater, 1992; Long and Long, 1992).

Exploring the multiple axes of difference is a recurrent methodological theme — gender analysis, age implications, wealth and well-being, and conflicts of power and interest are all important concerns in the study of agriculture (Welbourn, 1991; Cornwall *et al.*, 1992; IIED, 1992; Fairhead and Leach, 1992). Local (emic) understandings and interpretations of difference are seen as important in the examination of the dynamics of difference in local societies.

By using cumulative experience, by being creative in setting up research occasions, by being flexible and responsive, by acknowledging and assessing the importance of *difference*, research becomes a human experience of exploration and discovery, not a detached, scientific operation performed *on*, rather than *with* people (Lincoln and Guba, 1985). The researcher, by being actively engaged in the research (or extension) dialogue, is necessarily visible (Drinkwater, 1992). The performative role of the researcher/extensionist is an essential part of that engagement (Fabian, 1990).

These methodological trends in farmer participatory research have many significant parallels with the older traditions of Participatory Action Research (Huizer, 1979; Stiefel and Wolfe, 1985; Fals-Borda and Rahman, 1991) where the researcher becomes a full participant in concurrent research, action, and conscientization approaches to learning (Freire, 1972). These processes of encounter, experience, and reflection, facilitated by the "outsider", can lead to "insider" analysis and action (Cornwall *et al.*, 1992).

In this research mode, information collection and analysis are continuous and not separated in space and time as in the conventional cycle of fieldwork, analysis, and write-up. Information collection and analysis is done in the field, by and with farmers. In the ideal situation, local analysis would be done by local people for local people. Although examples of this exist, they remain isolated but promising cases (*cf.*, Shah, 1992). Such research efforts result in a series of portrayals of local realities — sometimes these remain contested, sometimes a locally negotiated outcome results. With farmers acting as both analysts and implementors at the same time, the shift from investigation to action is not fundamentally separated as in the conventional research to extension sequence; analysis and implementation are constantly interacting and mutually reinforcing.

Particular types of approaches make this methodological shift possible. These go beyond the conventional question-answer mode, where the framing of the question can limit the range of responses, so restricting the form, type, and content of attainable knowledge. Field methodologies are starting to focus on how to articulate with farmers' own dialogue and agricultural performances and how to explore the diversity of rural people's perceptions and representations. For example, developments within Participatory Rural Appraisal (PRA) and other similar approaches are beginning to bring these methodological debates together. Increasingly flexible, interactive approaches are recommended, using diverse methods that explore differences in knowledge and perception. Methods are applied in a variety of sequences that lead from open-ended exploration of issues to more focused understandings of key themes. The emphasis is no longer on rapid or cost-effective information collection techniques (IDS, 1979; Chambers *et al.*, 1989), but on "relaxed" approaches that lead to understanding and insight and that do not suffer the dangers of being "rushed and wrong" (Chambers, 1992b).

Visualization and diagramming techniques have been a particularly important development in recent years (Mascarenhas *et al.*, 1991; Chambers, 1992b), allowing an increased opportunity for farmers' to represent their own local perceptions and diverse knowledges. A visual language may be a more accessible language than the spoken word; visualization thus provides an important way of overcoming many language and interpretation problems of other field research methods. Other performance-based approaches are also important in this context — plays, songs, proverbs, poems, as locally generated vehicles for communication, provide important opportunities for methodological innovation, alternative representation, and insightful interpretation (Pool, 1991). Such performative approaches thus help break down the distinctions between data and analysis, subject and object, "insider" and "outsider", researcher and researched, and begin to tackle some of the dilemmas of representation and translation discussed earlier.

This kind of methodological innovation can lead to a more active involvement of farmers in the research and analysis process; in some cases taking it over completely — thus blurring the conventional distinctions between research and extension (Shah, 1992).

7. Exploring Encounters: Actors and Institutions

It is critical to reflect on the nature of farmer-researcher-extensionist relationships. How equitable are these relationships in so-called "participatory" projects and programs? What biases are introduced through the interactions of actors in such settings? What role does the researcher/extensionist play in the process? If research is to develop a view about what changes in existing research and extension practice are needed in order to develop an equitable and effective partnership between farmers and researchers/extensionists, studies of interactions provide an essential starting point (Drinkwater, 1992; Long and Villareal, 1992; Stolzenbach, 1992).

The detailed study of both the form and context of

interactions among farmers and between farmers and "outsiders" (such as researchers or extensionists) can be very revealing. The choice of language, the selection of issues discussed, and decisions to hide information, all provide insight into the political and social nature of the encounter. These micro-situations can also discover a great deal about more general macro-level social and institutional processes (Long, 1989). Moreover, imbalance in encounters are typical in research/extension practice. It is thus revealing to document the form of open and hidden resistance shown by farmers towards intervening agents (Scott, 1985; 1990), along with the form of negotiations arising and accommodations reached.

Conventional institutional models for research and extension are based on the transfer of technology model of agricultural development. Centralized research facilities, in research stations or universities, are aimed at producing widely extendible technologies. These are generally propagated through a top-down extension service, providing "packages" or "messages" to client farmers (Moris, 1991).

Alternative participatory approaches to agricultural research and extension are increasingly being tried. Here researchers and extensionists work together with farmers in the pursuit of on-farm trials, discussion is encouraged in the form of village research groups, and extension is seen as part of a dialogue (*cf.*, Gubbels, 1992; Scheiddegger *et al.*, 1989; Norman and Modiakgotla, 1990; Sikana, 1990). Such analyses of "interface" situations highlight the apparent social discontinuities — in values, interests, knowledge, and power (Long, 1989). Even if the researcher adopts a sympathetic, inquiring mode of investigation, what are the chances of hearing an expression of what a farmer thinks her/himself or expresses to other farmers?

Long and Long (1992: 277) write that emphasis on an "actor-oriented" approach

> . . . should not be taken to imply that . . . sociological analysis is reducible to "folk" concepts or individual subjectivities. Nor should we be content with merely demonstrating the "multiple realities" of social life. An actor-oriented approach entails, as the phrase suggests, an orientation towards understanding social phenomena from the point of view of social action and perception, which implies giving due recognition to individual strategy and understanding. But it also requires the analysis of emergent social forms that result from a mix of intended and unintended actions, as well as an understanding of how macro-representations and phenomena shape social behavior and individual choice.

Sikana (1990; 1992) assesses the Zambian experience from this actor-oriented perspective and concludes that the Agricultural Research and Planning Team (ARPT) village research groups have so far failed as a way of actively and equitably engaging local people in the process of research and extension. Why? At the research meetings "the discourse is dominated by the overbearing presence of the bearers of formal scientific rationality" (Sikana, 1990: 25). Because of the high profile involvement of ARPT staff in setting up the groups, organizing the meetings and coordinating the committees, the process acts to override alternative perspectives that lie outside the dominant discourse of "scientific", "modern" agriculture as espoused by the development experts. Those who are able to "participate" are those who are versed in this type thinking (*i.e.*, "modern", "progressive" farmers; those who are literate) or those who become incorporated for political reasons (*i.e.*, co-opted chiefs, political officials). Hence, village group meetings tend to create social distance between research staff and the majority of farmers. Participation is deceptive and partial. Only one dimension of local knowledge receives attention (Sikana 1990, 1992; see also Drinkwater, 1992, for experiences from another province in Zambia).

What alternative institutional settings exist that build on the principle of villager involvement in research and extension but avoid the biases? Sikana (1990, 1992) suggests a number of principles. Rather than create new local institutions that recreate the hierarchy and development rhetoric of "the project", work with existing groupings, for instance village networks based on kinship, affinal, gender, and other common interest ties. Rather than have the research and extension team initiate the process, allow it to be demand-led so external support is drawn in on local terms. Rather than impose a structure to village-based research (*e.g.*, particular designs of on-farm trials), let this evolve locally. Rather than expect the outcome of adaptive research to be the "optimized technical package", expect flexible, general principles to emerge on which farmers can improvise (*cf.*, Lightfoot and Noble, 1992; Okali and Sumberg, 1992; Pretty and Chambers, 1992).

8. Conclusion

From the foregoing, it is clear that a radically new concept of "intervention" in agricultural development is required. Interventions are conventionally regarded as discrete projects in time and space. They are focused on "targets", "recipients" or "beneficiaries." The interaction, whether in the context of research or extension, is assumed to be divorced from the every day flow of social life. A more sophisticated view of this interaction sees the relationships between farmers and the development agent (be they representatives of the state or an NGO) in terms of the ongoing pattern of struggle, negotiation, cooperation and compromise between different actors. This has a historical precedent (interventions of various sorts have invariably

occurred before), as well as a continuing dynamic (negotiation of development outcomes are ongoing). Advocacy of simplistic, deterministic models of blueprint intervention (*i.e.*, transfer of technology) or naive, populist processes of farmer participation (*i.e.*, *Farmer First*) are unable to account for the social and political forces at play in the interaction of contrasting, sometimes conflicting, knowledge systems. Alternative rural development methodologies, organizational structures, and institutional arrangements are needed to analyze difference, explore conflicts, recognize negotiation processes, and seek common ground, if the high ideals of productive, sustainable, and equitable agricultural development are to be realized.

In a far-reaching study of the introduction of farmer organization for self-managed development in Gal Oya, the largest and, at one time, the most rundown irrigation system in Sri Lanka, Uphoff (1992b: 303) has argued that a social science based on "Newtonian concepts of mechanistic cause and effect, of abstract impersonal forces acting at a distance, of linear relationships where all parts are proportional and interchangeable" is inadequate and misleading. Uphoff goes on to entreat us to develop a new "post-Newtonian" social science:

> We need a social science oriented to the puzzles and potentials of energy rather than to the stable state of equilibrium or the dismal prognosis of entropy .... A post-Newtonian social science looks beyond reductionist either-or/zero-sum thinking to tap the social energy to be found in collective action and nonmaterial realities. The methods and assumptions of positivist social science do not do justice to values, ideas, and motive forces like human solidarity. Because these have very real consequences — indeed, some inspiring possibilities — they deserve more attention than received within reductionist frameworks . . ..

Instead of regarding the world as easy to disaggregate into separate variables and linear cause-effect relationships, "post-Newtonian" analysts describe it as dynamic and complex, sometimes rapidly changing and often chaotic. From this perspective, there is no single reality, but multiple, contested realities, each with potentially conflicting social and normative interests, and diverse and discontinuous configurations of knowledge. Within these multiple realities, knowledge is 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 priorities. Such an understanding demands that we look closely at the issue of whose interpretations or models — those of scientists or farmers, men or women, rich or poor, old or young — prevail over those of other actors and under what conditions. To do this requires an investigation strategy that is open-ended and exploratory, rather than narrow and predetermined. The objectives of research are therefore to increase our understanding of complexity through iterative learning (a soft systems approach), rather than the testing of specified hypotheses derived from theory (a hard systems approach) (Checkland, 1984; Bawden, 1991, 1992).

The contrasts between *Farmer First* and *Beyond Farmer First* approaches to knowledge and knowing are significant and far-reaching. As approaches to investigation each has its role and can provide important insights and benefits, as long as the limitations are recognized. However, as the most powerful and dominant form of knowledge, positivist Western science, in which many *Farmer First* promoters remain firmly rooted, rarely accommodates criticism: its authority and superiority tend to be assumed. This is reinforced by institutional incentives and professional norms in agriculture, as in many other fields.

In this paper, we have not sought to provide a "totalizing critique" (Bernstein, 1983) that shows no hope of undistorted communication and dialogue between "farmers" and agricultural scientists. Rather, our argument is that if the knowledges and capacities of rural people and conventional agricultural scientists and extensionists are to have any chance of articulating productively, then attempting to force RPK into a straightjacket imposed by the framework of formal science is unlikely to work. Instead, productive engagement is only possible when common ground is found. In some cases, farmers' experimentation may follow a positivist mode of inquiry, involving hypothesis testing through empirical exploration. In such cases, the marriage of RPK and science may be relatively uncomplicated. However, in many other situations, agricultural science must change its approach to investigation in order to learn from farmers' knowledges and not simply assume that farmers must learn "good science" by being taught the ancient art of split-plot trials and the "tyranny of averages and norms" (Hacking, 1990).

Where frameworks of local understandings are conditioned by sociocultural settings, where agricultural experimentation follows a "performance" rather than a rationalist plan and where power, politics, and influence affect the expression and application of local knowledges, alternative, post-Newtonian research/extension approaches must be adopted if real communication and understanding are to be realized. This, in turn, implies significant attitudinal and behavioral changes, methodological shifts, and associated institutional and organizational transformations in agricultural research and extension.

Notes

1. An earlier version of this paper was prepared for the IIED/IDS *Beyond Farmer First: Rural People's Knowledge,*

Agricultural Research and Extension Practice Workshop, 27-29 October, 1992, Institute of Development Studies, University of Brighton, United Kingdom. For more on the *Beyond Farmer First Programme*, see Thompson, 1993b.

2. There is a growing body of literature documenting these changes in farmer participatory research and extension (Bunch, 1985; Ashby, 1990; Lightfoot and Noble, 1992; Thompson, 1993a), participatory monitoring and evaluation (Rugh, 1986; Stephens, 1988; Davis-Case, 1989), participatory technology development (ETC, 1991; Reijntjes, *et al.*, 1992) and participatory rural appraisal (Chambers, 1992a; Guijt and Pretty, ed., 1992). Small, but crucial attitudinal and institutional changes have also been noted, although advocacy remains the primary thrust of this literature (Chambers *et al.*, 1989; Chambers, 1992b; Pretty and Chambers 1992; Farrington *et al.*, 1993).
3. Notable examples include the work of the International Potato Center (CIP) in Peru (*cf.*, Rhoades, 1987; Rhoades and Bebbington, 1988); the International Center for Tropical Agriculture (CIAT) in Colombia (*cf.*, Ashby *et al.*, 1987, 1990, 1992) and Rwanda (*cf.*, Sperling, 1988); the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India (*cf.*, Kelley and Walker, 1991; Pimbert, 1991); and more recently, the International Irrigation Management Institute (IIMI) in Sri Lanka (pers. com., Douglas Vermillion, IIED, London, UK, 1992); the International Institute for Tropical Agriculture (IITA) in Nigeria (pers. com., John Thompson, IIED, London, UK, 1993); and the International Rice Research Institute (IRRI) in the Philippines (*cf.*, Fujisaka, 1992).
4. Recent examples include Abedin and Chowdhury, 1991, for Bangladesh; Dongol *et al.*, 1991, for Nepal; Loevinsohn *et al.*, 1991, for Rwanda; Sharland, 1989, for Sudan; Drinkwater, 1992; Sikana, 1990, 1992, for Zambia; plus others in Biggs, 1989; and Chambers *et al.*, 1989.
5. However, some recent publications (*cf.*, Chambers, 1992a, 1992b, 1993) have shown a willingness to embrace these difficult issues and to promote their understanding as part of a "new professionalism" among development specialists.
6. James Scott (1985, 1990) has written eloquently about "hidden transcripts" and "weapons of the weak" in relation to his work in Southeast Asia. We disagree, however, with his assimilation of them into prefabricated class categories to fit his neo-Marxist analysis, thus making the pieces of the social puzzle fit predefined class models.

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Mini-Announcements

New Publications

Metrofarm. The Guide to Growing for Big Profit on a Small Parcel of Land. By Michael Olson. $29.95 from agAccess, 603 Fourth St., Davis, CA 95616. (916) 756-7177. Fax (916) 756-7188.

Dark Victory. The U. S., Structural Adjustment, and Global Poverty. By Walden Bello with Shea Cunningham and Bill Rau. Foreward by Susan George. A Food First/Pluto Press Book. Institute for Food and Development Policy, 398 60th St., Oakland, CA 94618. (510) 654-4400. Fax (510) 654-4551. $12.95

Winning Back the Words. Confronting experts in an environmental public hearing. By Mary Richardson, Joan Sherman, and Michael Gismondi. Garamond Press, 77 Mowat Avenue, Suite 403, Toronto, Ont. M6K 3E3. (416) 516-2709. Fax (416) 533-5652. $16.95.

The Intimate Commodity: Food and the Development of the Agro-Industrial Complex in Canada. By Anthony Winson. Garamond Press. $21.95.

Friends of the Trees Third World Resource Guide. Compiled by Michael G. Smith and Michael Pilarski. May, 1993. Friends of the Trees Society, PO Box 1064, Tonasket, WA 98855, (509) 485-2705. $5.00

Courses

July 29-August 2. *Women and Ecology.* At Plainfeild, VT. Institute for Social Ecology, PO Box 89, Dept. B. Plainfield, VT 05667-0089. (802) 454-8493.

August 12-25. Permaculture Design Course. Near Athens, Ohio. For the Ohio Valley and surrounding bioregion. Held at Far Valley Farm. Co-taught by Michael Pilarski, Mark Cohen and others. (509) 485-2705.

Periodicals

International Journal of Ecoforestry, published by the Ecoforestry Institute, Mike Barnes and Twila Jacobson, Co-Directors. PO Box 12543, Portland, OR 97212. (503) 231-0576.

Society and Nature. The International Journal of Political Ecology. PO Box 637, Littleton, CO 80160-063. $25 for individuals.

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