

From sources  
in Vietnam  
Nov 93

W box

Edited extract from  
NEW POLICIES FOR DEVELOPMENT IN AGRICULTURE AND FORESTRY

by  
Jules N Pretty and Robert Chambers

The original paper of which this is an edited extract is some 30 pages long. This version has been prepared in order to make the key ideas in the paper accessible to a wider group of people who would not find the time to read the original paper. The extraction and edition was made in May 1993 by Hans Warfvinge, senior adviser in the project for renovation of strategies for forestry development, Ministry of Forestry, Hanoi.

List of Contents	page
1. THE CONTEXT OF CHANGE	1
2. CHANGING PHASES IN RESEARCH, EXTENSION, AND DEVELOPMENT IN AGRICULTURE AND FORESTRY	2
2.1. Participatory Approaches	3
2.2. New Learning Approaches and Environments	3
2.3. Old and New Professionalism	4
2.4. Old and new Institutional Settings	4
2.5. Old and New Policy Formulation	5
3. A VISION FOR THE FUTURE	6
Replicability and New Problems	6
4. LOCAL INSTITUTIONS	7
4.1. Types of Local Institution	7
4.2. Strategies to Overcome Problems	8
5. EDUCATIONAL ORGANISATIONS AND EXTENSION SYSTEMS	8
5.1. Formal Educational Institutions	8
5.2. Formal Extension Systems	9

1. THE CONTEXT OF CHANGE

The workshop held five years ago on the theme *Farmer First* marked the growing strength of a new world view in agriculture and forestry. It was recognized that the traditional *Transfer of Technology* approach to research and extension in agriculture and forestry had served well for industrial-scale production and for the green revolution but that it was unsuitable for small-holder agriculture and tree-growing in the third world. According to the *Transfer of Technology* approach, research is made by scientists and technology is developed on research stations and in laboratories. The results are then handed over to the extension system which hands them down to farmers. In the *Farmer First* approach, the needs and priorities of the farmers are put first, and farmers participate in research and extension. When this methodology is applied, it is found that the potential of the "resource-poor" farmers cultivating crops and trees in the third world is much greater than previously supposed. In order to achieve true participation of the farmers and really put their priorities first, facilitate their analysis, and support their experimentation profound changes are required, both in the personal, professional, and policy field. This paper seeks to address the challenge of these changes, drawing particularly on experiences from the past five years.

The *Farmer First* approach to research, development, and extension in agriculture and forestry has emerged as a result both of failures of the traditional approach and of advances in other sectors. Old approaches such as the *Transfer of Technology* one or the attempts at "modernisation" have almost completely failed to help poor people and reduce inequality. They have failed to take local complexity into account and have not recognised the capacity of farmers to adapt to changed conditions. Institutions and individuals in the old systems have engaged in self-deception instead of learning when they have met with unexpected problems or failures.

Results in other disciplines have followed a similar path, and a new paradigm is emerging which challenges the assumptions underlying the old "modernisation" approach. The following insights are now becoming widely accepted in international development work:

- \* Individuals are different. We have to live with these differences;
- \* We need to take a pluralist position, giving voice to individuals and groups so that they can participate in decision-making;
- \* Application of knowledge and technology is specific in time and place and cannot be freely transferred; instead, learning becomes essential;
- \* The future must be recognised as uncertain.

These insights reinforce the *Farmer First* approach. That approach in turn implies a new professionalism, new institutional settings, and new ways of formulating policies. The central challenge is how to proceed in a context of uncertainty, diversity, mutual causality, complexity, and rapid change.

## 2. CHANGING PHASES IN RESEARCH, EXTENSION, AND DEVELOPMENT IN AGRICULTURE AND FORESTRY

Robert Rhoades has recently (1989) reviewed 40 years of agricultural research and development. His conclusions help to clarify the nature of the challenge which we now face. He identifies the following historical stages:

- \* *Production stage* (about 1950-1975) when breeding and genetics were seen as the key disciplines and when farmers were seen as recipients of technology;
- \* *Economic stage* (about 1975-1985) when Farming Systems Research was pioneered by economists and agronomists and when farmers were seen as sources of information to be used for the design of technology;
- \* *Ecological stage* (about 1985-1995) when anthropology, agro-ecology and geography are the pioneers and farmers contribute their local knowledge. Farmers are also seen as both the victims and the cause of unsustainable development.
- \* *Institutional stage* (from about 1995 onwards), when the pioneering disciplines will be management, psychology, organisational sociology, political science, training, and education. Farmers will be full collaborators in research and extension. Effective alliances will also be developed between different institutions.

Even though each new stage has grown out of the previous ones, there has been a tendency among those who pioneer each new direction to play down the accomplishments of earlier approaches. As a result, Rhoades states, "the 'old' always argues that the 'new' is not so new ('we were doing it all along') while the 'new' fiercely defends what it perceives to be the wave of the future". Such positions reduce the effectiveness of new insights, as the four stages are not mutually exclusive but should rather be seen as dimensions of a single interdisciplinary whole.

It is not yet clear precisely how the new disciplines and skills will play a role in national and international programmes. At present, however, this should not be a cause for alarm, because early in every new stage no one was able to predict how that stage was to develop either. A vision for the future will best be based on experience. Two fields of recent advances are relevant here: participatory methods, and learning. Advances in these fields imply a new professionalism for research and development in agriculture and forestry, require new institutional settings, and lead to new approaches for formulation of policies.

## 2.1. Participatory Approaches

The past five years have witnessed a multiplicity of participatory approaches and methods. These have many names, such as farmer participatory research, participatory technology development, participatory rural development, and *farmer first*.

Taken together, these approaches and methods imply a shift of initiative, responsibility and action downwards in hierarchies, especially to farmers themselves. Investigations in past times were extractive, where researchers collected data and took it away to process it. Now, farmers themselves carry out investigation and analysis and share knowledge and insight with outsiders. Farmers carrying out such development work have shown a greater capacity to observe and to analyze than most outsiders expected. They are also now proving to be good facilitators for other farmers because, after all, farmers learn best from farmers.

Participatory approaches also imply new roles for scientists and extensionists in agriculture and forestry. Of course, scientists must continue their normal activities in laboratories and on research stations. But in addition, they will now use participatory methods in learning from and together with farmers. This will make it more easy for them to understand, respect, and serve farmers who live in diverse and complex conditions. The new approaches also enable farmers to learn for themselves. The new roles for the outsiders will include convenor for groups; catalyst and consultant to stimulate, support and advise; facilitator of farmers' own analysis; searcher and supplier of materials, principles and practices for farmers to try; and travel agent and tour operator to enable farmers to learn from each other.

## 2.2. New Learning Approaches and Environments

Teaching and learning are not the same thing. Learning does not necessarily result from teaching. Teaching implies the transfer of knowledge from someone who knows to someone who does not know. Teaching is the normal practice in schools and in universities. It also provides the theoretical basis of the *Transfer of Technology* approach to agricultural development.

Teaching can impede learning. It has been said that "*preoccupation with teaching has... actually constrained the effectiveness of higher education and limited its ability to meet society's demands... We might say that we are now beginning to perceive that the purpose of education is learning. And we are beginning to realise that frequently teaching interferes with learning.*" In the context of agriculture and forestry carried out by farmers, professionals will have to work with local complexity, diversity and uncertainty. They will thus have to be able to engage in sensitive learning about the particular conditions of rapid change. Traditional teaching does not encourage such learning. Some key differences between the "Old teaching" and the "New learning" are presented in the table below.

### Old Teaching

Reality is single.

Knower and the known are independent, so teacher and student are separate.

Generalizations free of time and context are possible.

There are real causes which precede their effects.

Inquiry is value-free.

### New Learning

Realities are multiple

Knower and the known are interactive and inseparable; teacher and students are both learners.

Only hypotheses bound to time and context are possible.

All entities are in a state of simultaneous change, mutually affecting each other, so it is impossible to distinguish causes from effects.

Inquiry is value-bound.

The implications of this comparison of teaching and learning are profound. All the actors involved in agriculture and forestry, including farmers, trainers, educators, researchers, extensionists, and administrators become

important, as do their interaction. The pedagogic goal becomes self-strengthening for people and groups through self-learning. The need is then less *what* we learn and more *how* we learn. The creation of environments which facilitates learning becomes important. In such environments, learning takes place through experience, through open and equal interaction, and through personal exploration and experiment.

### 2.3. Old and New Professionalism

The new roles of *Farmers First*, the new participatory approaches and methods, and the new learning environments, all require a new professionalism with new concepts, new values, new methods, and new behaviour.

By putting the old and the new professionalism next to each other one may get the impression that the old was only bad and the new is only good. A distinction should however be made between, on one hand, the strength of the traditional science as a body of knowledge, principles, and methods and, on the other its weaknesses in terms of beliefs, behaviour and attitudes. It is these weaknesses which the new professionalism seeks to change.

#### Old Professionalism

Professionals control and motivate clients from a distance; they do not trust rural people.

Professionals set priorities.

Single disciplinary

Technology first

If a technology is rejected it is assumed to be the fault of the farmer or of farmers' conditions.

Careers are inwards and upwards.

Men are dominant.

#### New Professionalism

Professionals enable and empower in close dialogue; they build trust through joint analyses and negotiation.

Poor and professionals set priorities together.

Multidisciplinary

People first

A technology which is rejected by farmers is a failed technology.

Careers include outward and downward movements.

Women and men are equal.

The contrasts are striking. Typically, old professionals are single-disciplinary, work largely or only on research stations, are not sensitive to diversity of context, and are concerned with their own creation and transfer of knowledge. Their beliefs about conditions and priorities of the farmers often differ from those of the farmers themselves. In contrast, the new professionals will be either multidisciplinary or work closely with other disciplines, will not be intimidated by the complexities of close dialogue with farmers and rural people, and will have to be constantly aware of the context of the enquiry and the changes taking place.

### 2.4. Old and New Institutional Settings

The old institutions, whether universities, research organisations, or extension agencies have characteristics similar to those of bureaucracies. Normally, thus, they have a centralised hierarchical authority, specialised disciplinary departments, standardised procedures, and uniform outputs. The institutions themselves determine what knowledge or service they provide to farmers and take the initiative in providing that output rather than finding out what the farmers need or want.

Personal promotion and the survival of the institution does not depend on external achievements, such as farmers adopting the products of research or applying the methods provided through the extension system. Instead, they are based on internal criteria, such as performance according to professional norms and success in keeping good relations with national or international sources of funds. The stability of these old institutions is partly achieved through self-deception: they maintain a way of learning

that often provides misleading information from the rural areas. The rule is that reports seldom mentions failures. In other cases, they give falsely favourable impressions of the impact of the packages and programmes applied.

The new institutions will be decentralised. They will have multi-disciplinary and flexible teams and present widely varying outputs in response to demands from farmers living under different conditions. Personal promotion and the survival of the institutions will depend more on external achievement, such as responding to the expressed demands from farmers. The new institutions will be learning institutions, with realistic and rapid feedback from field activities which enable the institutions to change in response to real results.

<b>Old Institutional Setting</b>	<b>New Institutional Setting</b>
Centralised and standardised	Decentralised and adaptive
Static design, packages, supply-push.	Evolving design, baskets of choice, demand-pull.
Response to external change is to collect more data before acting.	Response to external change is to act immediately and monitor the consequences.
Field learning is achieved through rural development tourism; errors are buried.	Learning is achieved through dialogue and participatory enquiry; errors discovered are utilised for learning.
Self-deceiving, misleading feedback from rural areas give false impression of impact.	Learning through feedback; project development is an adaptive and iterative process.
Institutions work in isolation.	Institutions are linked formally and informally to each other.

#### **2.5. Old and New Policy Formulation**

The history of programmes for soil and water conservation, rangeland management, irrigation, community forestry, and other fields have many traits in common. Technical prescriptions are derived from controlled and uniform conditions. After the prescriptions have been supported by a few cases of success, they are then widely applied, with little or no regard for diverse local needs and conditions. Soon, however, reality complicates the picture. Differences in natural conditions and livelihood of the local people often make the technologies unworkable and unacceptable. When a certain technology is rejected locally, the institution responsible for its distribution seeks to create artificial success by manipulating the ecological or social environment and sometimes even through enforcement. If the standard model still does not fit or is rejected, the reaction is at best to find out more and to change the model. The idea that the principle of preparing models for others to use might be a false one is strongly resisted.

Economic and administrative rules have long reinforced this traditional modernisation approach to rural development. The governments have set the conditions for farmers and the farmers have responded. This leaves the decision-makers isolated from reality in a self-defined world. Low rates of acceptance of the extension messages in agriculture and forestry are the fault of the farmers themselves. Farmers are said to be conservative.

In contrast, the new policies are enabling and create conditions suitable for self-development of farmers based on locally available resources. Policy makers establish dialogues and alliances with other actors, who are seen as equals. Analyses made by farmers and poor people are facilitated and their own demands are articulated. Dialogue and interaction give rapid feedback, allowing policies to change rapidly in response. As a result, policies in agriculture and forestry concentrate on making it possible for farmers and professionals alike to make the most of the available social and biological resources.

Old Policy Formulation	New Policy Formulation
Fixed and uniformly applied policies, because the future is assumed to be deterministic.	Adaptive and variable policies, because the future is assumed to be uncertain.
Analysis and planning by professionals.	Analysis and planning in alliance.
Dominant elites speak for others.	Dialogue of equals and demand from below.
Farmers do not participate in policy formulation.	There is a continuous dialogue as a basis for policy formulation.
Change and manipulate the environment.	Learn about and adapt to diverse environments.
Government provides services and the farmer is a recipient.	Government creates demand for choice of services; the farmer is a partner.
Policies create dependency on external inputs and discriminate against self-development.	Policies favour development based on available resources.

### 3. A VISION FOR THE FUTURE

This vision for the future, in which the new professionalism becomes the norm in new institutional structures, has already been achieved in certain places. There are, for example, an increasing number of well understood environmental and economic successes in complex, diverse, and risk-prone areas. Local groups supported by new professionals (in state organisations and NGOs) have increased yields, reduced negative environmental impacts, built up local capacity, reduced dependency, and so on. As yet, these are relatively local in impact. The major challenge now in agriculture and forestry within the framework of rural development is to scale up these successes.

Recent empirical evidence suggests that there are three essential areas to tackle. These are:

1. New institutional environments, including improved linkages.
2. New learning environments for professionals and rural people enabling them to develop their own capacity.
3. New methods for partnership, dialogue, and participatory analysis.

The empirical evidence suggests that all three factors are needed for sustainable solutions. The following assumptions underlie this framework:

- \* Participatory approaches and methods support local innovation and adaptation, accommodate diversity and complexity, enhance local capacity, and generate sustainable processes.
- \* An interactive learning environment encourages participatory attitudes, excites interest and commitment, and contributes to negotiated courses of action.
- \* Institutional support is essential for participatory innovations to spread between and within institutions, and for innovators to gain freedom to act.

When all the three conditions are met, the following situation is obtained: Support from the top of institutions is given. Authority is decentralised and local diversity is supported. There are incentives for participatory work. Linkages and sharing with other institutions (NGOs, governmental, local organisations) are encouraged. Spread of results is lateral, through sharing between and within institutions. The learning environment focuses on problem-solving and is field-based. Errors are used in the learning process. Behaviour and attitudes are democratic, stressing listening, not teaching. Methods and approaches are participatory and seek to increase capabilities. Local groups and organisations are supported and encouraged to conduct their own experiments and extension, to manage themselves and to make demands on the system.

Examples of these conditions or conditions moving close to them can now be found in many countries: Kenya and Burkina Faso in soil and water conservation; Sri Lanka and the Philippines in irrigation; India in watershed management, Pakistan and Ethiopia for community development, and many other cases.

#### **Replicability and New Problems**

A critical issue is to what extent the success stories are replicable. If the impact of the successful cases is to be wider, then attention will have to be paid to the wider policy environment which is not addressed by these successes. The following problems are commonly encountered:

- \* It is difficult to make feedback automatic on a large scale. In some cases, field staff cannot devote enough time to supervision or collection of feedback because the successful project has generated so much on-farm activities.
- \* Institutions resist the creation of a new reward system for scientists in agriculture and forestry which reduce the emphasis on controlled experimentation in research stations and the publication of scientific papers and instead give incentives for successful field work.
- \* Empowered local groups can be seen as a threat to the state or may indeed want to threaten the state.
- \* A desire may emerge to scale up the local successes into huge "Integrated Rural Development Programmes", thus losing sight of the need for diversity, adaptability, and other factors that lay behind the initial success.
- \* Political patronage and hijacking can occur when the successes are recognised by politicians who want to claim association with the activities for their own political aims.

#### **4. LOCAL INSTITUTIONS**

Local institutions have widely been ignored in research, development, and extension within agriculture and forestry. This is another expression of the focus of development on technology rather than on the organisational and institutional setting. All the success stories listed above have built on existing local institutions or helped to build new ones.

##### **4.1. Types of Local Institution**

Five types of local groups or institutions are directly relevant to the new agenda for research and development in agriculture and forestry:

- \* *Community development groups*, which have been successful in India.
- \* *Farmer experimental and village research groups*, which have succeeded in Zambia, Botswana, Ecuador, and Colombia.
- \* *Farmer to farmer extension groups*, such as in Honduras.
- \* *Natural resource management groups* which have worked well for soil and water conservation in Kenya and for irrigation in the Philippines.
- \* *Credit management groups*, most well-known from India (MYRADA groups), Bangladesh (Grameen Bank groups), and Nepal (Small Farmer Development Programme groups).

These local groups do have their shortcomings and it is difficult to incorporate their strengths into agricultural research and development along the new lines described here. Outside interventions also create new problems, particularly as they may damage or even destroy the operations of local institutions. There is in particular a tendency for the state to suffocate local initiative and responsibility. Another danger for local groups in a relationship with the state is that their initiative and resources may become used for the attainment of centrally determined objectives. This may come about by political patronage, as local politicians ensure personal involvement in local successes for the reflected glory.

New problems also arise during the evolution of groups. Growth in size can threaten effectiveness: too large groups can allow social hierarchies to dominate. Groups are also often more effective in their early years; as they grow in confidence they become more powerful. New activities may take them into new conflicts. Rejuvenation of the leadership is also a common problem. Original, successful leaders seldom build up secondary leadership, and so a vacuum grows within the institution.

#### 4.2. Strategies to Overcome Problems

The problems mentioned above have been overcome by institutions supporting the successful cases mentioned above. Those cases indicate that if the following principles for design of local institutions are followed, then people will be able to influence research and extension so that it follows their needs and wishes.

- \* External agents must be expected to play a positive role in change, particularly where there is no spontaneous local organisation. In training, external agents should assist rural people in development of new problem solving skills; this is more useful than technical training and is also more likely to lead to new rules for management and mobilisation of new leadership. Leadership is of course crucial to success. Leadership as such is common enough but if leadership is not adequately rewarded, unofficial or corrupt practices may develop.
- \* The strongest organisations and those that have the greatest impact on rural poverty tend to be those that first concentrate on general development of rural areas rather than on a technical issue. Such groups create demand for an organisation by beginning by defining the needs and interests of those involved. Perhaps the most important strategy is however to find ways of helping local institutions to join forces with small groups at the basic level which are represented by stronger institutions at higher levels.

### 5. EDUCATIONAL ORGANISATIONS AND EXTENSION SYSTEMS

#### 5.1. Formal Educational Institutions

Universities and their faculties of agriculture and forestry are often very conservative. They have been slow to adopt innovative ideas and methods. Further, they have a poor record in training professionals to be problem solvers. Most still maintain structures that reflect the multitude of disciplines that have emerged over the past 30 years. An innovative field of study is usually accommodated by adding on a new sector, with no attempt at restructuring. New ideas have failed to stimulate radical rethinking.

The structure of faculties of agriculture and forestry creates biases hugely in favour of teaching rather than learning:

- \* They are frequently organised along authoritarian rather than participatory management lines.
- \* Management positions are often held on basis of seniority rather than management skills.
- \* Creative and eccentric innovation is rarely tolerated.
- \* Institutional rewards, like being nominated senior author of papers, promotes individual and isolated research--making many institutions lonely places.
- \* Status divisions become extremely hard to break, such as the division between researcher and extensionist and between natural and social scientist.

The most fundamental need is to re-establish universities as communities of learners and as centres for learning. Academics must become involved in learning, learning about learning, learning about farmers. The education system does not need repairing; it must be transformed:

- \* Students must be given greater learning autonomy, so that their responsibility, leadership and creativity are enhanced rather than stifled. This means the development of flexible, learner-centred curricula.
- \* More focus must be placed on the application of solutions to real problem situations and in working with people to reach agreement about the existence and nature of the problems.
- \* The grade setting system must be changed so that it encourages the students to understand the reality rather than train them solely how to pass examinations.

## 5.2. Formal Extension Systems

Traditional extension systems closely follow the meaning of the word extend. Knowledge is extended from a centre of learning to those presumed to be in need of that knowledge. Researchers have a prestigious role of being the source of the new technologies, while farmers are passive recipients. The false assumptions on which extension and transfer of knowledge are based are the following:

- \* Real knowledge is the sole domain of the researcher.
- \* The farmer is a passive recipient of information.
- \* The initiative for disseminating information rests exclusively with the extension agent.
- \* Increased production is the main criterion by which farming improvements and thus success of extension should be viewed.
- \* The information needs of the farmer are in technical research results rather than in the area of the farmer's own management of his social and economic environment.

This approach to formal extension is exemplified by the *Training and Visit (T&V) system*. Extension agents receive regular training to enhance their technical skills, which they then pass on to farmers through regular contacts with certain farmers. Such contact farmers have been selected among those who have most to gain from certain technical improvements. The technical advice and knowledge provided to the contact farmers are then assumed to spread to other farmers. This secondary transfer of messages has been less successful than predicted. In this system, farmers who choose not to adopt the new techniques are often labelled as conservative, having attitudes negative to change.

The group-based, participatory approaches to extension provide the alternative to this old kind of extension. When looked at closely, it becomes clear that the new methods are quite different from the old ones. Instead of handing down pre-determined information, the new extension uses and develops the knowledge of the farmers, teaches observational skills, and develops joint decision making skills.

There is also a growing experience in farmer-to-farmer extension, visits, and mutual learning. These take different forms. Most common are farmer exchange visits, in which farmers are brought to the site where a certain technology has been successfully applied. There, they are able to discuss and observe benefits and costs with the farmers who have adopted them. Professionals play the role of bringing interested groups together and facilitating the process of information exchange. For farmers, "seeing is believing", and the best educators of farmers are other farmers. Such farmer to farmer extension has resulted in the spread of *Leucaena* contour hedgerows in the Philippines, agroforestry trees in Kenya, and a range of watershed protection technologies in India.

As local people develop the capacity to learn from and to teach each other, they also develop their capacity to carry out their own research. Many recent innovations made by farmers point the way to innovative learning and to sustainable development. In these cases, local people increase their capacity to solve their own problems. The cases all show that such informal learning is a low cost method of enabling farmer groups to adapt, choose and improve their farming systems. It also provides good experience for local leadership and stimulates others to develop leadership potentials.