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PUBLIC SECTOR AGRICULTURAL EXTENSION: IS THERE LIFE AFTER STRUCTURAL ADJUSTMENT?

The public sector extension services in which ldcs - often at the behest of donors - have invested large sums are achieving only limited impact but face unsustainably high recurrent costs. This is especially true of the 'Training and Visit' model promoted by the World Bank. Further, the fundamental promise of public sector extension - that low-income farmers are unlikely to obtain technical information unless it is provided by government - is increasingly being challenged. This paper reviews the pressures facing conventional agricultural extension and examines the prospects of recent approaches which are participatory, institutionally pluralistic and geared towards cost-sharing.

By John Farrington

What is agricultural extension?

Derived from Land Grant Universities' practice of 'reaching out' to farmers with new technologies at the turn of the century, the term 'extension' has often been criticised for the linear, unidirectional flow of information between research services and farmers that it implies. There are, the more recent critics argue, multiple sources of new agricultural inputs, ideas and practice (grouped here under the term 'technology'), which include private commercial and voluntary sectors and farmers' own innovations as well as public sector services. Information flows must therefore be multi-directional, and particular importance attaches to the feedback to researchers on how farmers respond to new technology.

Extension conventionally comprises several of the following functions:

- diagnosis of farmers' socio-economic and agro-ecological conditions and of their opportunities and constraints.
- message transfer through direct contact between extension agent and farmer or indirect contact involving intermediaries such as 'contact farmers' or voluntary organisations; through training courses and through mass media. Messages may comprise advice, awareness creation, skill development and education.
- feedback to researchers on farmers' reactions to new technology to refine future research agenda.

- development of linkages with researchers, government planners, NGOs, farmers' organisations, banks, and the private commercial sector. In remote areas, extension agents have taken on a number of these functions directly.
- monitoring of the extension system, and evaluation of its performance at farm level.

What have been the main features of public sector extension? Much investment in research and extension has been supported by international agencies. For instance, the World Bank alone committed over US$1000m during the 1970s to smallholder projects involving research and extension, rising to US$4700m in the 1980s.

In many countries in the 1950s and 1960s, extension was linked to specific capital investments, to ensure that farmers had sufficient access to inputs and technical information to make optimal use of e.g. irrigation infrastructure. Support for extension was broadened via integrated rural development projects, particularly in sub-Saharan Africa (SSA), in the 1970s. The lack of relevant technology in many areas then led to efforts to strengthen extension-research linkages, initially in South Asia in the 1980s and subsequently in SSA.

Donors perceived national extension services as fragmented, poorly trained, responsible to more than one authority, having little contact with research services and tending to work more with wealthier than with low-income farmers. In some cases, they were made to undertake duties such as tax collection which are anathema to good working relations with farmers. Remedial efforts - strongly influencing other donors - were undertaken by the World Bank in the form of the 'Training and Visit (T&V)' system. T&V had its origins in Israel in the 1950s, was subsequently tried in a World Bank project in Turkey in the late 1960s, and then introduced to South Asia in the late 1970s, initially where there was thought to be a large backlog of appropriate technology 'on the shelf'. T&V is characterised by: a single line of command; a stripping away of services not integral to the provision of advice (but recently allowing extensionists to supply recommended inputs, especially in remote areas); a focus on contact farmers (more recently, groups) intended to pass on information to others; time-scheduled activities; regular training and 'refreshers', and close linkages with research.

Why re-examine of the role of public sector extension services? Several factors argue for a re-assessment, among them:

Fiscal crisis: many ldc governments have for years found it difficult to make adequate resources available for agricultural extension; for some, recent state cutbacks under structural adjustment have exacerbated the situation. In India, for instance, some 20% of village extensionist posts are vacant at any one time, mostly in the more remote areas where it is difficult to keep government staff in post. Financial pressures have, in turn, led to the search for ways of reducing public sector costs by e.g. privatising parts of the extension service, having farmers pay government for some services, and cost-sharing arrangements between government and NGOs or farmers' organisations.

Poor (or unknown) performance: the impact of extension on production can rarely be separated out from that of other factors such as research, or changes in the availability

(or properties) of inputs. Numerous studies purporting to demonstrate strongly positive returns to extension expenditure have a weak methodological base: the production function analyses on which most rely generally incorporate incomplete sets of causal factors and so generate inflated estimators. A recent review by the World Bank of its support for T&V over two decades was critical of methodological weaknesses of this kind (see Box 1).

Changing contexts and opportunities: since the early focus on public sector extension in the 1960s, opportunities for small farmers to acquire technical information from sources other than the public sector have expanded rapidly. Improved transport networks have been one factor facilitating the expansion of NGOs and of the private commercial sector into remote areas. But the change has been most rapid with telecommunications: radio - and, in some countries, television - is now widely available in rural areas. Higher literacy levels and improvements in printing technology have expanded the opportunities for the spread of technical information through printed materials. Surveys of the sources of farmers' technical information are relatively easy to design and conduct, at least at the level of broad aggregates, yet they remain too few in number. A recent example indicates that government services are not among the top primary sources of information for many farmers (though of course the 'other farmers' cited in this example may have obtained their information from government). As argued below, the results of this type of analysis have profound implications for the design of extension but have not yet adequately been taken into account by governments or donors (see Box 2). There is growing evidence, though much of it from small scale projects implemented by NGOs, that participatory approaches enhance project benefits and, in some cases, stimulate wider empowerment of rural communities.

Pressures towards participation and good governance: in some countries, these processes are reinforced by political reform allowing people to have stronger influence on the design and implementation of projects and programmes. The range of participatory methods is burgeoning. However, the evidence remains unclear on whether the additional benefits of participatory approaches are sufficient to outweigh the costs, over what time scale they might do so, whether government itself can efficiently implement participatory approaches, or whether it should restrict itself to supporting other agencies (e.g. NGOs) which can.

Are there lessons from the North?

Pressures towards cost-recovery and privatisation have led to rapid slimming of public sector extension services in Europe, the USA and Australasia over the last decade. The contexts - whether agrarian (land tenure, prices, input supply, marketing, processing), communications, governance or educational - under which they operate differ markedly in many cases from those prevailing in ldcs. Nevertheless, the composite picture of 'best practice' in the North presented in (Box 3) provides some context for the innovative approaches to extension being developed in ldcs, and for the types of policy intervention that might improve both extension systems and their enabling environments.

The main features of innovative approaches to extension in ldcs include:

- *approaches based on farmer participation in diagnosis, testing and dissemination:* normally organised with groups of farmers rather than individuals, these approaches recognise that researchers and extensionists are unlikely to capture the complexity, diversity and risk facing low-income farmers, that farmers' own knowledge is important, and that farmers themselves are best-placed to interpret how relevant new technologies might be. Approaches vary from those in which extension services interact with temporary groups, to long-term efforts (usually by NGOs) to assist the emergence of cohesive membership organisations focusing e.g. on access to and management of natural resources (water; forest/grazing land; micro-watersheds). The latter take time, sometimes demand unrealistic levels of community cohesion, and are likely to be difficult, perhaps impossible, to implement on a large scale. A wide range of 'rapid appraisal' methods now support these participatory approaches; equally importantly, they have begun to expose middle/senior level officials to farmers' capacity to innovate. A variant which is potentially replicable is to have farmers visit experiment stations in order to select technologies appropriate to their circumstances, and provide feedback to researchers.
- *farmer-to-farmer dissemination:* there are less formal efforts based on many of the same principles, but not necessarily requiring group formation. This approach was used as early at the 1960s when Oxfam sponsored farmer-to-farmer visits across Central American countries, and subsequently has been widely tried elsewhere, particularly in S.E. Asia.
- *para-professional' extensionists:* some of the more formal group-based approaches select one or more members of the group to interact with public sector extensionists and researchers either across the board or on specific aspects of local farming systems. Whilst some initiatives - such as Swedish-supported forestry extension in northern Vietnam - assume that the para-professionals will do this largely on a voluntary basis, others link the provision of advice with input supply. Small farmers will pay for a package linking inputs and advice (Box 4); payment for advice alone is largely restricted to highly commercial farming.
- *extension through non-governmental intermediaries:* the chronic difficulties of maintaining a public sector field extension service on limited - often diminishing - budgets has encouraged efforts to link with existing field-based organisations whose mandate includes the provision of technology to small farmers. Thus, in eastern Bolivia, conventional public sector extension has always been weak, and researchers now use a Technology Transfer Unit to provide information to NGOs, farmers' organisations and area-based projects of various kinds, which then adapt the information - in both content and presentation - to suit their own constituencies. In India (Rajasthan) where extension has been much stronger, efforts are underway to sharpen its relevance to small farmers through interaction with NGOs.
- *innovative use of media:* over the last two decades local radio has become a widely used medium for the dissemination of technical information, and allows specific ethnic groups to be approached in their own language and in ways compatible with cultural norms. A particularly innovative experiment in the Philippines - but one unlikely to be sustainable without donor assistance - has put video cameras in the hands of farmers, in order to facilitate both farmer-to-farmer dissemination and feedback to researchers on the strengths and weaknesses of the technologies they have developed.

Extension configurations for the future

There is increasing recognition that farmers obtain technical information from a wide range of sources, that such information has to be adapted to a variety of agro-ecological and socio-economic conditions, and that farmers' own knowledge is essential in the selection and adaptation processes. The boundary between public sector extension services and farmers is shifting: farmers are reaching higher into the technology generation and transfer system in order to 'draw down' suitable technologies. The boundary is also becoming more uneven: those producing commercial crops are obtaining technical information from private sector input supply, processing and marketing agencies; those growing food crops are drawing on a much wider range of information supply channels and institutions than government alone, and where they do interact with government, they frequently do so not individually but via organisations representing their interests.

An important implication is that the view that 'government must provide' through blanket extension services reaching directly to farmers is outmoded: the most efficient extension services of the future will focus on spheres (geographical; thematic) inadequately serviced by the private commercial sector, which are likely to include soil and water conservation, other environmental, health and safety issues, and the provision of advice (and inputs) to food crop production especially in remote areas. Nor will extension services of the future restrict themselves to direct interaction with farmers: they will also aim to service in different ways and at different levels a multiplicity of intermediate organisations which themselves represent or work with farmers.

Institutional pluralism and farmer participation are important facilitating conditions for effective extension, and are themselves best served by political and macroeconomic climates which encourage: the formation of local groups; administrative and fiscal decentralisation of government agencies, and procedures to allow rural people a voice in the processes of planning and decision- taking. The enabling environment can be further improved by strengthening physical (roads; telecommunications) and social (literacy, numeracy) infrastructure.

Alliances between government extension (and research) services and other organisations such as NGOs or farmers' associations enhance the prospects of technical effectiveness, cost sharing and of cost recovery, thereby increasing the impact of extension per unit of government expenditure. The evidence suggests that, outside commercial settings, farmers are unlikely to pay for technical advice alone. However, it is clear that even low-income farmers will pay (if necessary via credit) for tangible inputs expected to be profitable (pesticides; vaccinations; certain tree seedlings), that they seek advice at the time of purchase, and that government efforts selectively to expand the types of advice that input suppliers can provide are likely to yield high returns.

Mechanisms for feedback from farmers through extensionists to researchers have been weak in the past and - not unrelatedly - a high proportion of technologies deriving from research have remained unadopted. Extension structured around a strong management system (T&V) has failed to improve this. The main constraints may lie elsewhere such as in researchers' reward systems which in many countries are based more on papers published than on levels of adoption. Similarly, systems for accountability focus more on regular report-writing and financial integrity than on

adoption. Both sets of pressures discourage the search for feedback but institutions such as NGOs and farmers' organisations are often better motivated than extension services to exert pressure on research. Donors and governments could usefully search for ways of enhancing the volume and impact of such pressure.

NGOs have developed a number of farmer participatory approaches relying on such institutions as local groups moulded on 'empowering' principles, with volunteer extensionists representing the interests of the group. These experiences have demonstrated the substantial improvements in type and pace of technical change that participatory approaches can bring. However, these approaches are time-consuming and it has not been demonstrated how they might be replicated on a large scale. A shrewd assessment will be needed to screen out unjustified assumptions about the representativeness of groups, the sustainability of volunteer extensionists and the amount of time that poor people have available for meetings, discussions and the like.

Policy implications for governments and international agencies

Public sector extension is likely to remain financially constrained and the pressures towards slimming-down and re-focusing will continue. In response, the philosophy of 'government must provide' will be replaced by one of seeking to:

- withdraw from areas which can adequately be serviced by commercial agencies;
- pursue cost-sharing by having local organisations provide grassroots extension agents with whom the public sector can link;
- complement the wide range of agencies who work with small farmers either directly, or indirectly e.g. via local radio;
- explore the scope for supporting input-supply organisations to provide more technical advice.

Formulaic approaches to the design of T&V will be inadequate to meet these complex requirements: demands on the planning skills of government and donor staff will increase considerably.

Public sector reform will eventually address the complex problems of reward systems and accountability, creating an environment in which feedback, and participatory approaches to the design and testing of technology, will be more effective. Two provisos merit emphasis: first, there will remain a need to offer farmers particular technical knowledge and training in specific techniques which lie outside the purview of their own indigenous knowledge. Second, government's comparative advantage lies less in implementing participatory approaches directly than in supporting the efforts of locally-based organisations to do so, and in improving the facilitating environment, not only by getting prices right, but also by fiscal and administrative decentralisation and the development of social and physical infrastructure.

The limits on government's capacity to work directly with the lowest income strata, together with the uncertainty over whether current (largely donor-funded) efforts to work with them can be sustained are likely to stimulate some re-assessment of how best to support what in many circles are presented as an undifferentiated mass of rural poor. Such reassessment will require: first, conceptual refinement so that interpersonal

differences in skills, motivation and commitment to farming become more fully recognised; second, the provision of a range of livelihood options that include not only farming but also casual, unskilled employment to cater for those for whom farming holds limited appeal and third - perhaps counter-intuitively in the current context of participation - some strengthening of mass media and a renewed emphasis on the promotion of a wide range of technology options through different media. In the medium-term, this may prove to be the most cost-effective way of offering farmers new technology options.

Further Reading

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