

CHANGING INCENTIVES FOR AGRICULTURAL EXTENSION – A REVIEW OF PRIVATISED EXTENSION IN PRACTICE

Robert Chapman and Robert Tripp

Abstract

This paper summarises a recent AgREN email discussion on privatised extension. The discussion highlighted the fact that private extension delivery is subject to a range of interpretations. A number of experiences in both industrialised and developing countries provide opportunities for examining the advantages and limitations of a privatisation strategy for extension. The examples include instances of purely market-based extension service, extension service linked to the private provision of inputs or purchase of outputs, cost-recovery schemes for public services, and public programmes that provide a partial subsidy for private extension providers. No single model is adequate to describe private extension, and the empirical evidence illustrates a range of experience regarding the adequacy of private providers, the ability of farmers to take advantage of a privatised system, and the capacity of governments to manage the transition.

Research findings

- Private extension is not a single entity, but includes a wide range of modalities, from the spontaneous emergence of private markets for certain types of advice and service to carefully guided public support for the development of private extension provision.
- A key to understanding private extension is the fact that it is possible to separate the provision of funding from the provision of service.
- Although a 'privatised' extension service may require significant public support, the most significant change is the development of a new incentive system, in which the quality and content of extension provision is more responsive to farmers' priorities.
- If privatised extension is to make a contribution, it will not embody the replacement of a monolithic public extension system by a similarly undifferentiated private system; instead, it will allow the development of a range of extension modalities and funding strategies.

Policy implications

- The transition to privatised extension modalities, with improved incentives, takes a significant amount of time and investment, and policymakers should prepare appropriate long-term plans.
- Private extension provision will only be effective if there are well-trained personnel who are willing and able to respond to farmers' requirements; considerable public sector investment in education and training will be required.
- Similarly, farmers need increased capacity to be able to contract, manage and evaluate private extension provision. This capacity may be enhanced through appropriate farmer associations and through decentralised political structures, but both of these areas present many pitfalls.
- An evolution towards private extension modalities should begin with those themes that are most likely to elicit farmer demand and investment; public responsibility for financing extension on themes such as environmental protection will likely remain, although private delivery modalities may prove useful.

Contact details

Robert Chapman is a Research Officer of the Overseas Development Institute, 111 Westminster Bridge Road, London SE1 7JD, UK.
Tel: 44 (0)20 7922 0300 Fax: 44 (0)20 7922 0399 Email: r.chapman@odi.org.uk

Robert Tripp is a Research Fellow of the Overseas Development Institute, 111 Westminster Bridge Road, London SE1 7JD, UK.
Tel: 44 (0)20 7922 0300 Fax: 44 (0)20 7922 0399 Email: r.tripp@odi.org.uk

The Agricultural Research and Extension Network is sponsored by the UK Department for International Development (DFID). The opinions expressed in this paper do not necessarily reflect those of DFID. We are happy for this material to be reproduced on a not-for-profit basis. The Network Coordinator would appreciate receiving details of any use of this material in training, research or programme design, implementation or evaluation.



Network Coordinator: Robert Tripp Administrative Editor: Alana Coyle Administrator: Fiona Drysdale

CONTENTS

Page

Abstract	i	
Contact details	i	
Acronyms and abbreviations	iv	
1 INTRODUCTION	1	
2 PRIVATE EXTENSION LINKED TO COMMODITIES OR INPUTS	2	
3 THE INTRODUCTION OF PRIVATE INCENTIVES TO GENERAL AGRICULTURAL EXTENSION	3	
4 THE MANAGEMENT OF PRIVATISED EXTENSION	7	
The service providers		
The farmers		
The nature of the service		
Targets		
Funding		
5 POLICY IMPLICATIONS	10	
6 CONCLUSIONS	11	
REFERENCES	12	
Boxes, figures and tables		
Box 1	Livestock extension services supplied by dairy unions in India	3
Figure 1	Public and private characteristics of agricultural information	4
Figure 2	Privatised extension options for funding and delivery	5
Table 1	Case studies of agricultural extension programmes using privatised services	6
Table 2	Privatised extension approaches to promote environmental management priorities	9

Acronyms and abbreviations

ADAS	Agricultural Development Advisory Service
GIS	Geographic Information System
ICTs	Information and Communication Technologies
IPM	Integrated Pest Management
ITC	Indian Tobacco Company
NAADS	National Agricultural Advisory Services
NABARD	Ministry of Agriculture and the National Bank
T&V	Training and Visit

CHANGING INCENTIVES FOR AGRICULTURAL EXTENSION – A REVIEW OF PRIVATISED EXTENSION IN PRACTICE

Robert Chapman and Robert Tripp

1 INTRODUCTION

Agricultural extension finds itself in the midst of significant changes and uncertainty. Processes of change have been underway for some time but in many developing countries these have been accelerated by structural adjustment reforms aimed at reducing public sector spending. An environment of declining government budgets combined with waning donor interest has led to significant cuts in public extension services (Farrington, 1994). Those public extension activities that remain are under increasing pressure to provide an accountable and responsive service to citizens. At the same time, the retreat of governments from managing agricultural input and output marketing, a diversification in the sources of agricultural research, and increased opportunities for trade, have opened many new opportunities for the private sector, including extension provision.

In addition, there is growing uncertainty about what role extension is supposed to play in the development process. There is now a much-reduced emphasis on uniform messages (such as those provided by the T&V system). The need to involve farmers more in the extension process itself has been recognised for some time and a number of participatory and facilitation approaches have been developed (Roling, 1995; Coldevin, 2000). In addition, farmers need extension on a diverse range of rural development options including information on markets, rural industry and other income opportunities (Farrington et al., 2002).

Privatised extension has been the subject of widespread discussion by those considering the challenge of providing an efficient agricultural extension system for farmers in developing countries (Farrington, 1994; Kidd et al., 2000; Rivera, 2001; Katz, 2002). Although new private extension initiatives offer many opportunities for commercial farmers, there is less certainty about the implications for resource-poor farmers whose connections to, and command of, markets is much more tenuous. It is generally recognised that many of these farmers have been poorly served by conventional, public sector extension in the past, but does a call for 'privatisation' of extension imply any greater hope for them? Can private extension initiatives serve the needs of commercial farmers (in order to strengthen the contribution of agricultural markets to economic development) and at the same time redress the neglect suffered by many resource-poor farmers whose production is principally for subsistence?

Privatised extension can take many forms and it has become clear that it does not represent a simple, undifferentiated alternative to the monolithic public extension system it is often expected to replace. By examining a number of experiences around the world it is clear that extension services vary considerably by the degree to which they have adopted privatised extension mechanisms. For this reason it is less useful to talk of a 'model' of privatised extension that can be adopted wholesale than to consider what aspects of privatised extension offer genuine options under which circumstances. In this way policy makers will be able to choose from a range of privatised extension mechanisms to achieve the most equitable and efficient extension service with the resources available.

What exactly is meant by private extension? Is it a single entity or a broad set of principles? What has been the experience to date, and what policy lessons might be learned? Our purpose in this paper is not to define what proportion of extension services should be privatised, but to review the various interpretations of privatised extension, assess lessons to date, and draw implications for extension policy. The paper is based on an email discussion on the subject of privatised extension hosted by AgREN March 10–21, 2003 (website address: www.rimisp.cl/agren03). The paper attempts to summarise major points raised by participants in that discussion and includes case material provided by participants and other literature that was reviewed in preparation for the discussion.

Section 2 considers the various forms of privatised extension that emerge in the course of agricultural development, often linked to markets for certain commodities and inputs. It is useful to consider some of these examples of private extension that have developed to fill gaps or opportunities in the market place before considering privatised extension as a more strategic concept for achieving public extension reform in Section 3. This section will draw on the cases outlined in the electronic discussion to examine how the theory of privatised extension has been put into practice in different countries and contexts. Section 4 focuses on those issues relating to the management of privatised extension. The diversity of circumstances alluded to in the preceding section creates the need for flexible and pluralistic extension methods. Privatised extension can only offer an improved service to farmers if it is able to deliver according to their diverse requirements. Tailoring an extension service to farmers' needs requires

the development of sufficient management expertise to enable the farmers, funders and service providers to organise themselves effectively. Section 5 considers the possible policy implications for privatised extension based on the issues raised in the earlier sections.

2 PRIVATE EXTENSION LINKED TO COMMODITIES OR INPUTS

Any discussion of private extension must acknowledge that there are several different types of activity that may qualify for this label. This section briefly reviews some of the instances of private extension activity that emerge more or less spontaneously with the development of agricultural markets. These include extension related to contract farming, the activities of agricultural input and commodity firms, the contributions of producer co-operatives, and the provision of veterinary services.

There has been considerable growth in contract farming, and this is often associated with the provision of extension advice. For instance, farmers in Kenya who grow horticultural crops on contract to exporting firms can expect to receive some advice and support on crop management, not only to ensure the exporter of good quality produce but also to provide a service to the contracted farmers. Contract farming can offer significant opportunities to farmers (Benziger, 1996), but there are also many problems, including farmers' potential loss of control over farm management decisions and dependence on a single buyer (Porter and Phillips-Howard, 1997). The extension advice offered under contract farming may be of good quality, but it is usually confined to the crop in question, and farmers have little choice about the content or nature of information delivery. The degree to which extension provision in contract farming responds to farmers' priorities is a function of the distribution of power between the firm and the producers. The cost of providing the extension advice is usually included (although not necessarily explicitly) in the contract with the farmer; indeed the higher extension needs of smaller farmers is one reason that firms often prefer to avoid such producers in contract farming (Key and Runsten, 1999).

Other opportunities may link extension advice to the delivery of a commodity or the purchase of inputs. Several recent examples from India show how commodity firms or input suppliers may be motivated to provide extension services (e.g., crop management advice, weather reports) to their clients. The provision of this service may be strictly linked (so that farmers who are not clients of the firm are excluded from the service), or may be provided as an inducement (e.g., to encourage farmers to sell their harvest to a particular buyer). Rallis, an input marketing company, has established rural service centres to provide a range of integrated services to farmers growing wheat, soybean, vegetables and fruits. In return for a fee, farmers are provided with regular visits by agronomists, assistance with credit arrangements, access to farm inputs, soil testing and a guaranteed market for their produce.

Mahindra and Mahindra Limited, a tractor company, has also begun to offer private extension services through its dealerships and franchisees. These services are provided on a fee-per-area basis and include sale of farm inputs, credit, field visits by trained supervisors and produce procurement. The service was aimed initially at rice farmers and has been expanded since it began in 2000 to include sugar cane, maize and wheat (Sulaiman, 2003). EID Parry also initiated farmer extension services through locally managed information centres in order to strengthen the relationship between its sugar mill in Tamil Nadu and the contract sugar cane farmers. The farmers are provided with more timely information on the status of their account in terms of credit, input supplies and produce sales and can access a range of extension advice. It is clear that all these initiatives are in their early days and have arisen in a particular context of a competitive agribusiness sector and improving information technology facilities. These initial experiences show signs of a developing range of privatised extension services from private companies, where farmers are willing to invest with no public sector encouragement.

A commodity-based link to extension may also be initiated from the farmers' side. A good example is the activity of producer co-operatives or commodity associations that organise the provision of extension advice on behalf of their members. The Maharashtra Grape Growers Association is one of India's oldest farmers' organisations with approximately 17,000 members with 20 elected members working as 'extension functionaries.' The association has four offices in the state through which it organises discussion groups and seminars, and publishes printed materials such as a monthly information newsletter. The association carries out research and development on a designated research farm and provides facilities for soil, water and plant testing and brings outside experts to solve specific problems (Sulaiman and Sadamate, 2000). Commodity associations that fund their own research usually provide some type of extension to disseminate the results among their members. In Colombia, a Rice Producers' Federation funds adaptive research and extension in which local farmers participate in identifying priorities and evaluating results (Estrada et al., 2002). Producer co-operatives may provide important extension services to their members without becoming involved in research activities. Box 1 outlines the range of extension activities provided by milk producer unions in India, and shows how the charges are divided between farmers and the union.

Another example of private extension can be found in the organisation of veterinary services in many parts of the world. Although the state has often provided veterinary services, there are many instances of a parallel private market, particularly for curative services on a fee basis provided by veterinarians or dealers of pharmaceutical products. The motivations for such service are clear: livestock keepers are willing to pay for good quality advice and products to maintain the health of their animals, which represent a valuable stock

Box 1 Livestock extension services supplied by dairy unions in India

Livestock extension services can help to assist milk producers at every stage of production, from improved animal husbandry through to better quality milk and increased production. In India over 11 million farmers receive these services through their cooperative milk unions, and the National Dairy Development Board helps to improve the quality of the service through training the dairy union staff, introducing new extension approaches and new technologies. The milk unions have technical officers and extension supervisors that provide the services to the dairy farmers. The farmers are expected to pay for services both indirectly through their milk union and directly, depending on the type of service received. Although the exact funding arrangement varies from one union to another according to their relative financial strength, the split between indirect and direct payment for livestock extension services is illustrated in the following table:

Extension Services	Type 1	Type 2	Type 3
1. Animal health care services			
Veterinary first aid and emergency care	✓		✓
Vaccinations, Deworming, Mastitis control	✓		✓
Brucellosis screening		✓	
2. Artificial Insemination and Infertility camps	✓		✓
3. Feed and Fodder activities			
Promotion of ration and feed management	✓		
Varietal demonstration on fodder crops and Silvipasture demonstration			✓
Promotion of fodder production on individual farmers' lands and seed multiplication of fodder crops at farmers land	✓		
Fodder demonstration unit at union land		✓	
Supply of quality seeds of fodder crops	✓		✓
Promotion and demonstration of fodder management techniques	✓		✓
4. Other training and institution building activities		✓	

Type 1: Total cost directly charged to farmers
 Type 2: Total cost borne by milk union
 Type 3: Part of cost borne by milk union (indirect payment) + part directly charged to farmers

The unions provide a core set of extension services on topics of broad interest such as clean milk production or a clearly defined priority area such as capacity building for women. These services are supplied to all members irrespective of their social and economic status. Many of the other services listed above represent specific assistance related to the farmer's scale and method of production. The farmers own the milk unions and therefore all the services provided must correspond to the underlying imperative of profitable production while at the same time ensuring that the diverse needs of different producers are addressed.

Source: Sabyasachi Roy, 2003

of savings and a source of income. As long as there is adequate choice and competition, farmers have a chance of receiving an efficient service.

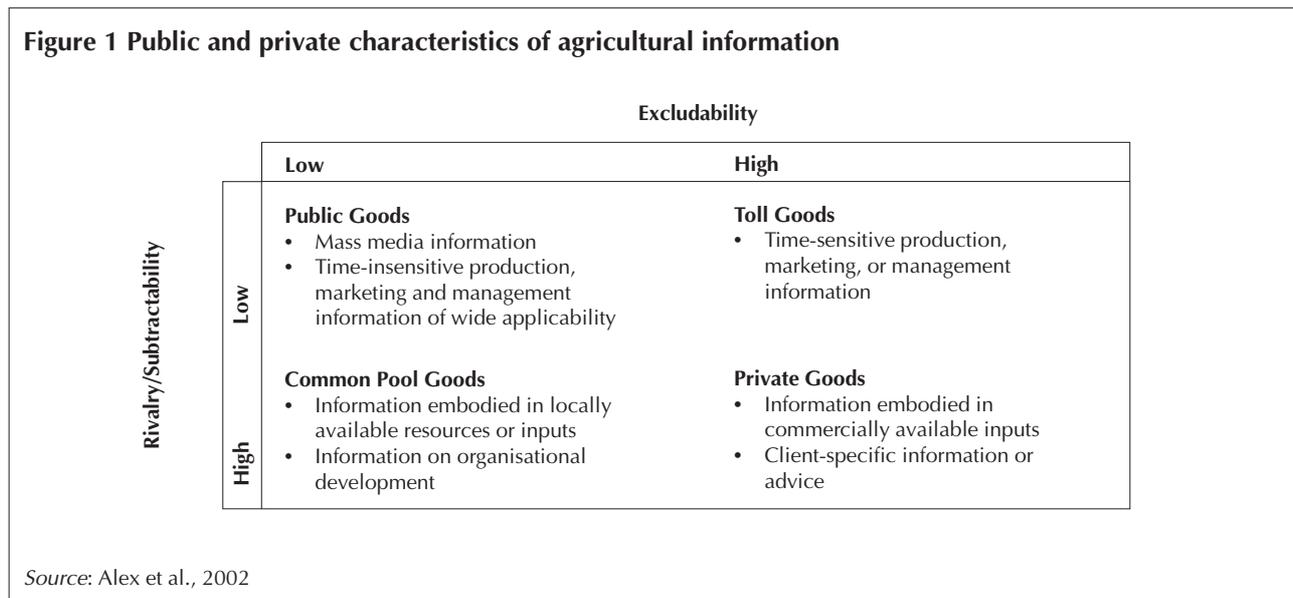
Elements of privatised veterinary service appear even among resource-poor herders. Actionaid/Vetaid set up a paravet service in the Sanaag Region of Somaliland in the early 1990s. There were no other veterinary services and a network of 30 paravets was formed to cover the large isolated area. Privatisation through the sale of veterinary drugs at commercial rates based on the establishment of veterinary pharmacies in each district emerged as the most sustainable strategy, following consultation with pastoralists. The proposal also included linking paravets to the pharmacies and linking the pharmacies to traders to ensure the mutual exchange of technical, veterinary and business knowledge (Catley, 1996). The emergence of a private veterinary sector depends on the policy environment. For instance, it is often difficult for privatised veterinary services to compete with subsidised public services. In addition, regulations and professional jealousies sometimes stand in the way of the development of an independent private veterinary sector. It is important to develop the political will for reforms to take place through the promotion of relevant training, clear distinction between veterinarians and paravets, and

adequate licensing and regulation (Carney, 1998). Veterinary associations can also play an important role in promoting a privatised service and enforcing regulations (Leonard, 1993)

The example of veterinary services has implications for crop extension: farmers are willing to pay for extension service, but particularly when it is related to issues of significant economic importance and involves fairly straightforward, targeted measures. On the other hand, preventive measures and public goods issues in livestock management (just as in crop extension) are less likely to see the spontaneous development of a market for private provision. The next section will consider the way private incentives influence general extension activities.

3 THE INTRODUCTION OF PRIVATE INCENTIVES TO GENERAL AGRICULTURAL EXTENSION

In theory, private extension is simply the provision of a service or advice by a private firm in exchange for a fee; the terms and conditions of the transaction are negotiated in an open market. The degree to which this can be done in practice depends on the extent to which extension services can be converted into a private good. Agricultural information is commonly



seen as a public good because of its low excludability and low subtractability. The common distinction between public and private goods is illustrated in Figure 1. Much agricultural information can spread easily amongst farmers and retains its value despite wide access, and is thus considered a public good. Agricultural information with private good characteristics could be tied to the use of a purchased input (such as instruction on the use of a particular chemical), specific to the fields of an individual farmer (such as tailored soil or pest management advice), or provided through long-term interaction with a farmer or group of farmers. The other two cells in Figure 1 represent additional categories of information. An example of a toll good might be time-sensitive market information for which a farmer was willing to pay, and an example of a common pool good might be information on the management of common forest or grazing resources.

Agricultural information provided as a private good can occur in various circumstances and does not necessarily require the existence of a highly commercial agricultural system. For instance, in the 1930s, villagers in northern Thailand employed lowland rice growers to teach them how to terrace and farm irrigated fields (Kunstadter, 1987). But in general, instances of extension information provided through private market mechanisms are more likely to occur with highly commercial agriculture. In some instances in Europe and North America, private extension markets have developed to meet a broad set of needs. In the UK, for example, a private extension sector has been active for many years, even before the public Agricultural Development Advisory Service (ADAS) was privatised (Garforth, 2002). In the US, many farmers pay private consulting firms to provide technical extension services. In the state of Illinois, for example, precision farming services such as grid soil testing using geographic information system (GIS) software for precise mapping

of individual fields and the generation of soil fertility maps are available from various suppliers. Farmers tend to contract this service directly from the local cooperative, private input supply firm or a private agricultural consulting firm. Farmers are able to use the analysis to define their use of fertiliser and agro-chemical input requirements with the potential of saving costs on inputs and improving overall yields. A reduction in the application of nitrogen in Illinois following the adoption of precision farming practices has also resulted in ‘public’ environmental benefits by alleviating some of the damaging effects of nitrogen being introduced into the local freshwater and Mississippi River delta ecosystems (Swanson et al., 2002).

The Indian government has launched an ambitious initiative to encourage private extension with the Ministry of Agriculture and the National Bank (NABARD). Graduates are being trained to become ‘agripreneurs’ and on completion of their courses they receive a loan to establish an ‘agrilinic’ or ‘agribusiness centre’. Farmers are expected to pay a fee for their services and the agripreneurs are expected to identify the demand for a broad range of services from soil testing to advice on organic production and food processing. So far 112 businesses have been set up in 10 states and it is intended that the new services will provide specialist advice that may be beyond the scope of the service presently offered to farmers through public extension (Shekara and Charyulu, 2002).

The performance of private extension services is more complicated than the theory suggests because of the difficulties inherent in making information a commodity, subject to excludability, as well as because of market imperfections that may reduce social welfare (Hanson and Just, 2001). An important part of agricultural extension is the provision of knowledge on the benefits of new technologies and techniques. However, much of this type of knowledge cannot be restricted for use only to those who pay for it. Without

'excludability' of this kind the service providers cannot prevent the information being shared by other potential buyers and are therefore unable to profit from providing the service. One strategy is to link the advice to another product that is excludable, such as an input. There are cases when this can lead to a conflict of interest. Hanson and Just (2001) describe examples from Maryland (US) where private firms offering advice on nutrient management and integrated pest management (IPM) link their services to the sales of fertiliser or pesticide (respectively), which constitutes moral hazard. In addition, if farmers are unaware of the value of the information they receive and the benefits are not easy to observe, then it can be very difficult to establish a market price for the service.

Social benefits from extension will be reduced under a private extension system when market imperfections arise. Imperfections may be associated with the costs of reaching remote areas or the failure to provide affordable services to smaller farmers. In the Maryland case described by Hanson and Just (2001), the private companies that supply nutrient management plans tend to concentrate on larger farms, and private IPM services also focus on major crops and larger farms. In the UK, although new clients were attracted to the privatised extension service, many smaller farmers were unable or unwilling to pay for advisory services (Garforth, 2002). There is thus a concern that this type of privatisation will not come close to addressing the much more diverse, and often more subsistence-based, needs of the majority of resource-poor farmers in the South. In these cases, general calls for 'privatised extension' may be diversionary or irrelevant unless more thought is given to how private incentives might be directed towards the reform of conventional extension.

Although it is possible to question the relevance of private extension because of these limitations of private extension markets, it is necessary to recall the overarching problem of public extension's current high costs and low efficiency. There is a need to reduce public expenditure and challenge the centralised and top-down structure of public sector extension. It is also important to recall that current approaches to government activity favour a 'new policy agenda' under which greater participation and decentralisation are expected (Kidd et al., 2000).

One of the first steps is to recognise that it is possible to separate the funding of extension from its delivery. Figure 2 summarises the major possibilities. Cell A represents classic public extension and Cell D represents the 'pure' form of private extension service, such as the examples that have been discussed in this section. However, there are two other possibilities.

Cell B represents various cost-recovery strategies that can provide income to public services and improve efficiency. In the UK, ADAS was privatised in 1997 but an earlier change in legislation (Agriculture Act 1986) paved the way for fee-charging and set a target of 50% cost recovery from charges to farmers over a period of five years. These targets were readjusted in the run-up to privatisation. Certain services such as environmental protection and conservation were retained by the

government at the time of privatisation and formed an executive agency within the Ministry of Agriculture. The government also retained the option of subsidising certain services by contracting ADAS or another consulting company to offer the service for them (Garforth, 2002). There are various opportunities for cost recovery in public extension activities and these need to be explored.

Cell C represents cases where public funds are used to contract private suppliers of extension. In some cases the transition proceeds almost completely towards private funding. In Germany the shift to private incentives was initiated in some areas following reunification. The state of Thuringia is one example that has attempted to introduce private extension in order to reduce public expenditure; the budget was cut from DM 5.2m to DM 2.5m per year (Currle et al., 2002). In Chile the reform process has been going on for over 25 years with the first privatised extension service in 1978. There has been significant investment over this period by the government, and it still funds 85%–90% of the programme's total cost. The process has therefore been more about improving the quality and efficiency of the service than simple cost recovery or privatisation (Berdegué and Marchant, 2002). A major experiment in Africa is recently underway with the National Agricultural Advisory Services (NAADS) in Uganda, where farmer forums at the local level are being constituted to use funds provided through local government to identify and contract private extension providers. The reforms are operating in 10 districts initially with further expansion into the remaining 46 within 5 years. The contracts are expected to be managed locally through local government and farmers' organisations with small groups of advisers and private companies.

The following section will consider some of these aspects of transformation that affect the management of privatised extension with respect to a number of case studies. The examples include a mixture of types B, C, and D from Figure 2. It is important to understand that whilst in many cases such experiments in private extension are meant to 'replace' the public service, it

Figure 2 Privatised extension options for funding and delivery

		Delivery	
		Public	Private
Funding	Public	A. Free public extension service	C. Subsidies to private extension, extension contracts, voucher schemes
	Private	B. Cost-recovery by government agents	D. Private enterprise

Source: Kidd et al., 2000

Table 1 Case studies of agricultural extension programmes using privatised services

Country Case	Description	Service Provider	Contractual arrangements	Level of Service	Beneficiaries	Funding
Chile (a)	Covers the whole country. First privatisation in 1978	Since 1990 NGOs, small farmers' organisations and qualified private sector firms	Arranged between farmers and municipal authorities or directly with service providers	Both technical and professional services ranging from farm management to legal advice	25,000 small farmers targeted up to 1990 then increased to 52,000	85–90% funded by the government. Co-financing by farmers increased since 1997 with allowances for 20,000 small farmers
China (b)	Grassroots extension system operates at all levels through the Agro-Technical Extension Centre (ATEC)	ATEC system operates at the grassroots level using 500,000 farmer technicians, 6.6 million demonstration households	Fee-based, cost-sharing and commercialised agricultural services	Full spectrum of advisory services with 371,000 professional, technical and administrative staff	All farmers, but high-value crop producers and members of commodity associations most able to pay	Three types of funding: 1. Contract or fee-based 2. Farmer Associations formed by World Bank-funded project (1993–2001) with cost-sharing for technical consultants' fees for some specific advice 3. Commercialised services
Estonia (c)	All forms of agricultural advice provided	Certified advisers and approved specialists from organisations including universities and institutes	Different contracts according to scale of activities (individual farmers, groups, demonstrations)	Services provided by advisers funded annually include training days, demonstrations, seminars and publications	Farmers and farmers' organisations or project-specific target groups	Funding provided by the government. Farmers contribute 15% towards small individual services and 50% for larger contracts. Services to groups managed by county-level administration recover 20% of the cost from farmers
Germany – Thuringia State (d)	Thuringia joined the Federal Republic of Germany in 1989; privatised extension system began in 1998	Advisers from other regions came to fill the requirements for private extension services. Young local advisers also trained as existing public sector staff resisted the transition	State-specific advisors approved to work on contracts up to DM 130,000 value over three years	Private extension services focus on individual technical, financial and administrative farm management. Environmental issues, promotion of women, plant protection retained as public service	4300 farmers cultivating 802,000 ha of arable land. Following privatisation number requesting advice fell from 80% to 13%	State-level funding reduced from DM 5.2m to DM2.5m per year including DM1.4m to cover advisor personnel costs, with the remainder covering residual public service and administration costs. Private fee rates variable under contracts with average charges to farmers of DM 66
Netherlands (e)	Extension service became independent of government funds in 1990 and renamed DLV	The DLV and the National Farmers' Association implement agricultural projects for the government	Farmers agree contracts for timing, payment, personnel, and plan of activities with advisers	Service changed to more client-oriented approach from previous transfer of technology approach	All farmers	30m Dutch Guilders provided by the government to subsidise the plan determined by the Ministry of Agriculture
Romania (f)	Agricultural Development Project Vaida set up for vegetables, corn, wheat, soybean	NGO provides the service. Public service cannot provide frequent or planned services at a comparable level	Contracts agreed between advisors and farmers based on service, price and frequency	Site visits and written advice, group meetings, demonstrations of growing methods, testing and analysis	7000 farmers in western part of Romania	NGO funded initially, with a shift to partial cost-recovery from farmers in the form of service fees
Uganda (g)	The National Agricultural Advisory Services (NAADS) programme set up following recent extension reforms	Small groups of advisers such as NGOs, private companies and individuals	Majority of funding expected to be managed by sub-county governments with contracts arranged between them and farmers	Range of advice focused on improving agricultural productivity	Project currently being operated in only 10 of a planned total of 56 districts	Programme budget is \$108m over 7 years with expectation that farmers will take an increasing responsibility for paying service providers

Source: a) Berdegué, J. and Marchant, C. (2002), b) Chuang, N., Swanson, B. and Yan, F. (2002) c) Loolaid, U. (2002) d) Currell, J., Hoffmann, V. and Kidd, A. (2002) e) Proost, J. and Duijsings, P. (2002) f) Ploas, K. (2003) g) Nahdy, S. (2002)

is not a case of a one-for-one exchange, where a public provision system is, for instance, substituted by a single, subsidised, system for contracting private extension providers. The hope is that this is simply one step towards a significant diversification in extension provision, where a wide range of providers, contracted or directed through various modalities, is available to farmers. Those lamenting the loss of services provided in type A should also reflect on the extent to which an equitable and efficient service has previously been achieved in any given context. The options for reform offered by privatised extension are not merely low-cost versions of the status quo but should be marked improvements in the transfer of agricultural information and advice for long term development objectives as well as promote a strengthening of farmer control and evaluation of the extension service. Although public sector cost-recovery and subsidy programmes should be regarded as transitional (Umali and Schwartz, 1993) a flexible mix of services is likely to be required for a long time before fully privatised services can be achieved.

4 THE MANAGEMENT OF PRIVATISED EXTENSION

This section provides a brief review of issues related to the management of privatised extension. The issues include the development personnel and services for private extension, the organisation of farmer demand for that service, the nature of the service provided, the ability of such systems to reach poorer households, and funding modalities. The following discussion will make reference to the cases summarised in Table 1 as well as examples provided during the recent email discussion.

The service providers

A key to any type of private extension is the availability of skilled service providers. In most countries the majority of this expertise has been concentrated in the public extension service. In theory, such extension agents can establish new careers in the private sector. This has happened to some extent in Europe, but the transition is not always easy. In the new Uganda strategy, much reliance is being put on the staff of NGOs (some of whom are former public extension agents). In Guatemala, farmer organisations encouraged to hire extension agents have tended to favour local personnel, which has the advantage of increasing the communication between farmers and the agent, but may imply some sacrifice in technical skills. The programme in India for establishing 'agriclinics' is training recent agricultural graduates, most of whom have never worked in the public sector, to help them establish their own consultancies.

There is a need to think about how such extension agents will be trained, and the conditions of service that will induce someone to follow this career when it is no longer linked to a protected civil service position. In the German example of Thuringia State, the public sector staff proved unable to adjust to serving their clients through a privatised system of extension. The

new services therefore had to draw on private sector advisers from other states and it was necessary to train younger staff who were less entrenched in the old system. One of the premises for privatised extension improving the quality and relevance of the service to farmers is based on there being a choice of service provider and a degree of competition between them. In many of the cases it is the development of a large enough supply of trained advisers to fill not only one extension service organisation but several competing ones that has taken considerable time and resources. Attracting private sector advisers from one area to another such as in the example of Thuringia is obviously not an option in Uganda, for example, where capacity is absent throughout the whole country. For this reason the alternative strategy of building on the existing capacity of NGOs has been adopted out of necessity. In Chile many of the existing private sector organisations including NGOs and farmers' organisations were excluded from contracting under the government funded extension programme for political reasons up until 1990, when these constraints were removed and the range of service providers began to diversify.

Training schemes and training institutions, including those related to extension, have tended to suffer particularly severely from public sector budget cuts. In the transition to privatised extension delivery the need for training is likely to increase and responsibility for funding this activity may rest with the public sector for a considerable time. Sasakawa Africa Association and Winrock International have been collaborating since 1993 to provide mid-career extension training to help public sector extension workers adjust to new challenges. These innovative extension training programmes have been established in Ghana, Tanzania, Ethiopia and Uganda through the Sasakawa Africa Fund for Extension Education (SAFE). Although extension workers benefit from further technical training it is also important that they understand the structural changes taking place and to 'grasp the new roles that the private sector is playing and the likely prospects for private-sector participation in extension delivery and financing' (Opio-Odongo, 2000:9). It is necessary to consider the implicit training requirements in transition strategies and ensure that not only the funding but also the capacity is available for local training programmes to be made available.

The farmers

In cases where farms are very large, or there is high demand for an individualised service (such as veterinary treatment), privatised extension may be managed on a farm-by-farm basis. But in the majority of the cases that were reviewed, the service is channelled through some type of farmer organisation. In these cases, a challenge is to identify the type of farmer organisation that is most appropriate for this purpose. In some of the cases discussed in Section 2, commodity-based organisations already exist and these are a natural conduit for extension advice. But dealing with smaller farms and more diversified needs requires a different

type of organisation. There is not yet enough experience to assess the degree to which organisations purposively formed to provide an interface with an extension market will be effective. Private extension provision will have to deliver a certain minimum level and value of service to elicit broad-based and vigilant participation from farmers in the organisation that is responsible for contracting and monitoring. Experience (outside of private extension) has shown that it is easier for external agencies to form groups of subsistence cultivators than it is to guarantee that these will be self-sustaining. In a comprehensive review of Associative Peasant Business Firms, farmers organisations that are being promoted in Chile, Berdegú (2001) shows that those peasant associations that focus on specialised commodity markets with high transaction costs are most likely to be viable. Those associations that are formed to gain advantage in traditional wholesale commodity markets do less well, and those that lack 'effective links to specific markets will either collapse from lack of purpose, or will become...a channel for government or intermediate agency funds, taking advantage of the greater political leverage enjoyed by almost any organised group of farmers' (ibid.,265).

One approach has been introduced in Estonia that differentiates the amount of cost-recovery required to reflect the scale and indivisibility of the services being offered. For individualised services farmers pay a minimum of 15% and a maximum of 50% depending on the overall size of the contract. Services provided to farmers as a group tend to be managed by county level administration and are charged to farmers at a rate of 20% of the total cost. The farmers and certified advisers are registered in order to operate under the individual contracts for services that are agreed between the two parties but also require county level government approval. The individual agricultural advisory services are therefore subsidised but the contracts allow the farmers greater flexibility to determine the nature of the services they receive (Loolaid, 2002).

In a number of cases the administration of private extension is linked to decentralised government structures that provide the funds and liaise with farmer groups. In Uganda, for example, the majority of funding is expected to be managed by contracts between sub-county level government entities and farmers. However farmers (both as individuals and as members of groups contracting for the provision of services) are likely to need capacity building to benefit fully from such mechanisms. As many governments are involved in decentralisation, this can provide an impetus for private extension, but if the decentralisation process itself is badly managed, then the prospects are not good. Farmers' organisations in particular are often seen as the beneficiaries of privatised extension reforms but they require long term investment to build organisational capacity *before* increased decision-making regarding extension service provision should be transferred to them. Although a structure of farmer groups and forums is being developed, much will

depend on the ability of the majority of resource-poor farmers to make their voices heard and to develop the capacity to evaluate the services provided in their names (Kidd et al., 2000). The range of services provided by the milk co-operatives shown in Box 1 illustrates how an organisation owned by its members provides pluralistic extension services in response to diverse needs. It is also worth restating that it has taken 35 years for the milk producer co-operatives to develop the organisational capacity that they have today. It cannot be assumed that such institutions will blossom immediately under conditions of privatisation and decentralisation.

The nature of the service

The nature of privatised extension service offered to farmers will depend on the strategies of extension delivery and the range of ICT that may be enlisted. An additional issue is the responsibility for providing extension that promotes long-term environmental management concerns or other public policy issues that are unlikely to respond to a private extension market.

An important issue for the future of privatised extension is an understanding of exactly what type of service is to be provided. No matter what the future of privatised extension, it is widely acknowledged that the traditional model of top-down, uniform instruction on crop management recommendations (characteristic of much public extension) is far from the requirements of today's farmers. In the first place, where extension is successful, it is more likely to involve strong farmer participation and to feature joint problem solving rather than standardised solutions. To what degree such requirements can be met by building farmers' capacity (to solve their own problems), farmer organisation (to seek joint solutions), or an efficient market for extension advice (responding to clearly articulated farmer needs) remains to be seen. Secondly, public agricultural extension has traditionally been seen (although not always functioned) as a conduit between farmers and public agricultural research. Public research must face some important changes itself (Byerlee and Echeverria, 2002) and it is not clear how private extension might fit in. Recent innovations in which competitive grant programmes for agricultural research encourage the participation of public and private organisations, NGOs, and farmer organisations (Reifschneider et al., 2000; Bingen and Brinkerhoff, 2000). Such competitive grants could be extended to encourage private extension and better links between research and dissemination.

In addition, the technology for providing extension messages is changing and it is necessary to consider how things like FM radio (as well as more effective use of traditional print media) can be marshalled in support of new extension modalities. The arrival of new information and communication technologies (ICTs) has reduced the cost of information transfer and is likely to continue to do so. Garforth et al. (2003) suggest that farmers in developed countries are using them increasingly for specific tasks such as business planning. However, harnessing these technologies for

resource poor farmers in developing countries is not straightforward and institutional arrangements are likely to be as important as technical and investment concerns for improving extension services. It could be that a focus on improving the dissemination of under-utilised information generated by public research through the imaginative use of ICTs would be a useful strategy for the retained subsidised public extension service (Chapman and Slaymaker, 2002). There are a number of agribusinesses using ICTs to strengthen their competitive advantage whilst improving the information that farmers receive as producers (for processing and export companies) or clients (for input suppliers). The Indian Tobacco Company (ITC) has established 1200 village information kiosks (*e-chaupals*) that place computer terminals in villages. They cover a range of crop advice for over 750,000 farmers in four states. Farmers receive information in the local language through the company website on farming techniques and other services such as district-level forecasts from the state Department of Meteorology. Farmers can send queries by email, access inputs and services from partner organisations and verify the price at ITC's procurement centres (Sulaiman, 2003).

Public sector information and communication infrastructure already exists in the form of mass media networks in many countries. The relevance of extension information can also be affected by the language and culturally appropriate methods of dissemination. Vernacular radio dramas performed by local groups are one example of how information can be adapted to make it more context specific whilst at the same time maximising its dissemination (Farrington, 1994; Chapman et al., 2003). Both new and old ICTs can be harnessed in this way and can be integrated to improve the decentralised production of information materials. Printed materials, for example, can offer more practical and directly relevant information advice if farmers are encouraged to describe their own experiences in terms that other farmers are likely to understand (Padre et al., 2003).

There is also the problem that any private extension system will naturally tend to concentrate on those issues that have the highest immediate payoff to farmers. The limited experience to date indicates that farmers participating in private extension express much lower demand for long-term environmental management issues. This has traditionally been an area of concern (although not necessarily of accomplishment) for public extension. It is important to understand how to structure the incentives of private extension systems towards environmental concerns.

Table 2 summarises three European experiences in which extension related to environmental management has been channelled through partially privatised mechanisms. The use of the voucher system in the Netherlands (i) case has had only limited success, with only 25% of farmers taking up the vouchers. Despite their face value of 227 Euros, farmers find the procedures for cashing them in time consuming and many of the environmental policies have alienated the farmers sufficiently to prevent them from attempting to achieve standards perceived to be unrealistic. On the other hand, the small focussed study groups of the pilot study in the Netherlands (ii) case have proved popular since their inception in 2001. This has proved more successful at encouraging farmers to tackle the problems associated with nitrogen runoff management, drinking water quality and ammonia emission through more holistic integrated farm management (Van Weperen, 2003). The case of support to the viticulture producers in the Douro Valley of Portugal focussed on agro-environmental training and IPM practices. The IPM associations have strengthened their capacity through the programme and more careful use of pesticides and chemicals has been observed amongst the small-scale producers. The contractual arrangements are stringent, requiring farmers to attend courses, conform to IPM rules, use IPM phytopharmaceutical products exclusively, and follow IPM association rules for a minimum of five years. Farmers are requested to document the biological cycle of the crop's pests,

Table 2 Privatised extension approaches to promote environmental management priorities

Case Study	Description	Service Provider	Contractual Arrangements	Level of Service	Beneficiaries	Funding
Netherlands (i) (a)	Mineral management support unit established 2001	Private consultancy firm	Voucher system	Training courses, books, software, advice	80,000 out of 110,000 arable and dairy farmers	18m Euros (farmers each get 227 Euro voucher)
Netherlands (ii) (b)	Intensive dairy farmers receive advice on holistic management	Dairy farmers platform sought private sector support	Farmers' representatives and provincial officers form guiding committee	Four study groups formed to follow programme	40 farmers in Drenthe Province	260,000 Euros over 3 years from EU, provincial and farmers' org. funds
Portugal (c)	Support to small-scale viticulture producers in Douro Valley.	IPM associations	Farmer receives subsidy and pays 25% to IPM Assoc of which must be a member	Training, on-farm trials, individual technical support and info	38,000 producers with small (2-acre) farms important for wine industry	EU (75%) and government (25%)

Source: a, b) Van Weperen, 2003 c) Cristóvão et al., 2002

conduct periodical risk assessments and damage evaluations, and provide the information to a control agent in a log book (Cristóvão et al., 2002).

Targets

The targeting of private extension is also an important issue. Although the demise of public extension may be seen as an abandonment of the cause of resource-poor farmers, that argument requires a specification of how well public extension has served the poor in the past. The term 'private' in agriculture is immediately associated with larger, commercial farmers, and indeed the emergence of many types of private extension bears this out. In this sense, poorer households may not be able to take advantage of privatised extension. In the case of Thuringia (Germany) in Table 1, the proportion of farmers seeking advice fell from 80% to 13% when the extension system was privatised, and the majority of those requesting advice were farms of over 500 ha. But the discussion has shown that there are also models in which public funding and public policy can structure the incentives that characterise private markets in the service of more equitable agricultural development. This will not be an easy task, however, and it requires broad-based and knowledgeable participation from farmers themselves and adequate monitoring and regulation. It is also acknowledged that this will require a significant level of subsidy in those cases where there are many resource-poor farming households who are not able to pay more than a fraction of the actual cost of the service provided. At a time when public extension services are being severely cut (for budgetary reasons), there is a need for devising the most cost-effective system possible.

Funding

Funding tends to be the focus of the debates on privatised extension. The impact of funding on the management of privatised extension has been discussed in terms of the different approaches that service providers and farmers can be expected to use under different funding mechanisms. Many of the experiences with privatised extension rely on a significant level of public sector funding. In the UK, where more complete privatisation has taken place, the relative percentage would be expected to be small. In other countries such as Chile and Uganda, with partial privatisation, the public sector contribution is likely to be much higher. The underlying factor of concern for many developing countries with less dynamic agricultural sectors is that the level of public sector funding will most likely continue to be a high proportion of the total. Withdrawal of public funding, therefore, needs to be carefully managed to avoid the sudden decline in farmers' access to the service. Even with relatively modest targets the process may take a long time; for example farmer contribution in Chile is now only 10–15% after 25 years. Contracting directly with service providers remains an option even for those governments that have privatised completely, such as the UK which may request ADAS or another competing private organisation to provide certain advice based

on public sector policy. Obligations for financing from the international community can be determined in relation to the level of 'global' public goods in the extension programme (Katz, 2002). Donor funding, however, has historically exhibited significant variability over years and between regions, contributing to instability in planning and discontinuities in extension programmes. A review of World Bank lending for extension between 1981–2000 illustrates this variability (Alex et al., 2002). Governments and donors undertaking extension reform need to consider not only the need for some degree of absolute public support for services but also the strategic impact of changes in funding over time. Phasing privatisation can assist in the process of institutional reform of the national extension service provider, for example, during the transition phase. In Holland, for example, the extension service (renamed DLV) was officially privatised in 1990 but funding continued for five years albeit with a diminishing subsidy (10% per year). From 1996–2000 competition for the government subsidy was limited to the DLV and the national farmers association (LTO). The two organisations were allocated funds according to project proposals submitted in response to the annual plan of the Ministry of Agriculture. This process ensured that these service providers were able to rely on the public subsidy for part of their costs while adjusting to supply a private sector market for their services over an extended period of time (Proost and Duijsings, 2002).

5 POLICY IMPLICATIONS

One of the most important conclusions from this review of private extension experience is the amount of time required to implement a transition from conventional public sector extension to a more agile and differentiated strategy that takes better advantage of private incentives. Even in the European examples in which public services were privatised in an environment of highly commercial agriculture, adequate time had to be allowed for the transition. In the case of Chile, the developing country with the longest and most extensive experience at implementing private extension modalities, the system is still evolving after 25 years. In Uganda, one of the most ambitious plans for the privatisation of extension in Africa envisions a similar time period for making the transition. Any policy aimed at introducing private extension needs to plan (and budget) for considerable experimentation and flexibility.

The experience of many experiments in privatised extension indicates that human resource development may be one of the most important bottlenecks. No extension system, public or private, can function without adequately trained and motivated personnel. As public extension systems decline because of lack of funding and poor management, their staff may leave for other endeavours and not be available to participate in new strategies. Similarly, public support for education and training is jeopardised when the public extension service is in decline. Thus any plans for the establishment of a privatised extension strategy cannot

neglect attention to the public role in agricultural education. In addition, extension agents working in the private sector will require business and management skills that are not currently found in most agricultural curricula.

On the other side of the equation, a privatised extension system will only function if farmers are capable of articulating their needs, managing and enforcing contracts with private extension providers, and evaluating the results. Considerations of efficiency indicate that these functions will often need to be managed by some type of farmer group or association (unless farmers have very large holdings or are willing to pay for individually tailored advice). The dilemma is that farmers' groups require specific incentives (e.g., commodity marketing) in order to elicit broad-based participation, and it is questionable whether contracting occasional extension services will be a sufficient motivation for the emergence of sustainable groups. Thus private extension may be delivered to farmer groups formed for purposes that have more economic immediacy. One strategy to ease the burden on nascent farmer groups is to channel some of the contracting and evaluation of private extension through decentralised political structures. Ideally, this strategy not only eases the transition to the delivery of private extension that is more responsive to farmer needs, but also represents the development of more responsive local government that can deliver public (agricultural and other) services as well. However, it is important to recognise the serious challenges to establishing effective decentralised political structures in developing countries and to treat the linkage of privatised extension and decentralised politics with some caution.

In considering strategies to make better use of privatised extension modalities, policymakers will need to draw links to other areas that have traditionally been public responsibilities. Public agricultural research is undergoing significant changes of its own, and these need to be examined in the context of the possibilities for private extension delivery. In addition, the means of communicating extension information are diversifying rapidly, and ICTs offer possibilities for improving the efficiency of public media as well as opening new horizons for private information delivery. Policies that support the development of a comprehensive ICT policy can make a big difference to the performance of private extension options.

Finally, there are several responsibilities that remain firmly in the public domain. A shift towards privatised extension strategies can only be justified if it improves the efficiency of service and meets the needs of the majority of the farming population. In developing countries, privatised extension systems will have to be structured so that the majority of resource-poor farmers receive better service than they do under the public extension system. Thus farming populations, areas and themes that are not amenable to some type of privatised extension approach will remain as public responsibilities. It is likely that it will take a longer time for any privatised extension system to reach more remote areas, for instance. As well, public agricultural

policies that focus on themes such as resource conservation will require more time to find a place in privatised extension delivery. Finally, at least until the emergence of a truly diverse and competitive market of private extension providers, there will be the need for a public role in regulating the provision of private extension.

6 CONCLUSIONS

Agricultural extension has come to be so firmly associated with the public sector that any talk of privatisation risks sounding like the thoughtless abandonment of goals for broad-based agricultural development and appearing as a mere pretence for cutting public budgets. This review indicates that such fears are not warranted. In the first place, private extension alternatives have been debated and developed precisely because of concerns with the poor performance of much of public extension, including its inability to consistently deliver useful information to resource-poor farmers. Any critique of private extension should include an analysis of current and past performance of the public system. Secondly, 'privatisation' in the case of agricultural extension implies a long-term transition to more responsive forms of information delivery; that transition will require significant public funding for the foreseeable future. The goal is to make the public investment in extension more efficient, not to eliminate it. Although some types of private extension emerge spontaneously in the course of agricultural development, the more challenging aspects require a combination of public policy and funding and the encouragement of an expanded range of professional capabilities in agricultural extension.

An explanation of the nature of private extension requires an understanding of the possibility of separating the funding of extension activities from their delivery. Under conventional agricultural extension, a public agency was granted a yearly budget and was responsible for all extension activities. Consideration of private extension recognises that public moneys can be used to fund private activities, and that public services may benefit from private (cost-recovery) revenues. The single most important feature of privatised extension systems is not a change in the source of funds but rather a change in the nature of incentives that drive information provision. There are certainly many instances of dedicated public extension personnel who labour to meet the needs of client farmers. Nevertheless, much public extension is characterised by the mechanical delivery of messages and an almost total lack of feedback mechanisms. The key to privatised extension is to devise modalities through which farmers can express their requirements and evaluate the results. The ideal would be a competitive, private market for agricultural information, affordable to all and responsive to farmers' needs. The realities of agricultural development and the nature of agricultural information make that ideal difficult to realise. Therefore privatisation represents a much more difficult series of experiments to elicit the most

responsive and equitable system possible, under a given set of circumstances.

The signs so far indicate that some progress has already been made, but that we have much to learn and many more experiments to carry out and evaluate. Concerns include the skills and incentives available for the providers; the capacities of the farmers to contract for the service; the fact that some types of service are much more amenable to private provision than others; and the importance of assessing the equity implications of any reform in extension policy. A conclusion of the recent AgREN discussion on private extension was that considerable time and experimentation were required for the evolution of any comprehensive strategy. There is a crucial need for more experience, evaluation and analysis from the field to help guide that process.

REFERENCES

- Alex, G., Zijp, W. Byerlee, D. (2002) 'Rural extension and advisory services: New directions'. *Rural Strategy Background Paper*, No. 9. Washington, D.C.: AKIS Thematic Team, World Bank.
- Benziger, V. (1996) 'Small fields, big money: Two successful programs in helping small farmers make the transition to high value-added crops'. *World Development*, Vol. 24, No. 11, pp. 1681–1693.
- Berdegúe, J. (2001) Cooperating to compete. Associative peasant business firms in Chile. PhD Thesis, Wageningen Agricultural University.
- Berdegúe, J. and Marchant, C. (2002) 'Chile: the evolution of the Agricultural Advisory Service for Small Farmers: 1978–2000' in W.M. Rivera, and W. Zijp (2002) *Contracting for agricultural extension. International case studies and emerging practices*. Washington D.C.: CABI Publishing.
- Bingen, R.J. and Brinkerhoff, D.W. (2000) 'Agricultural research in Africa and the Sustainable Financing Initiative'. *Technical Paper* No. 112. Washington, D.C.: Office of Sustainable Development, Bureau for Africa, USAID.
- Byerlee, D. and Echeverria, R. (eds) (2002) *Agricultural research in an era of privatization*. Wallingford, UK: CABI Publishing.
- Carney (1998) *Changing public and private roles in agricultural service provision*. London: Overseas Development Institute.
- Catley, A. (1996) Pastoralists, paravets and privatisation: experiences in the Sanaag region of Somaliland. *Pastoral Development Network Paper* 39d. London: Overseas Development Institute.
- Chapman, R. and Slaymaker, T. (2002) 'ICTs and rural development: Review of the literature, current interventions and opportunities for action' *ODI Working Paper* No. 192. London: Overseas Development Institute.
- Chapman, R., Blench, R., Kranjac-Berisavljevic, G., and Zakariah, A. (2003) 'Rural radio in agricultural extension: the example of vernacular radio programmes on soil and water conservation in N.Ghana'. *Agricultural Research and Extension Network Paper* No. 127. London: ODI.
- Chapman, R. and Tripp, R. (2003) 'Case studies of agricultural extension programmes using privatised service provision'. Prepared for AgREN electronic discussion 10–21 March, 2003 and posted on conference website: www.rimisp.cl/agren03
- Chuang, N. Swanson, B. and Yan, F. (2002) 'Financing extension: Lessons from China in extension and rural development: A convergence of views on institutional approaches?' Workshop papers; November, 2002, IFPRI, Washington, D.C.
- Coldevin, G (2000) *Participatory communication and adult learning for rural development*. Rome: FAO
- Cristóvão, A., Alves, F. and Koehnen, T. (2002) 'Portugal: Contracting for IPM extension by the Association for Viticultural Development in the Douro Valley' in W.M. Rivera, and W. Zijp (2002) *Contracting for agricultural extension. International case studies and emerging practices*. Washington D.C.: CABI Publishing.
- Currle, J., Hoffmann, V. and Kidd, A. (2002) 'Federal Republic of Germany: Contracting for agricultural extension Thuringia' in W.M. Rivera, and W. Zijp (2002) *Contracting for agricultural extension. International case studies and emerging practices*. Washington D.C.: CABI Publishing.
- Estrada, R., Holmann, F. and Posada, R. (2002) 'Farmer and industry funding of agricultural research in Colombia' in Byerlee and Echeverria (eds).
- Farrington, J. (1994) 'Public sector agricultural extension: Is there life after structural adjustment?' *Natural Resource Perspectives* No. 2. London: Overseas Development Institute.
- Farrington, J., Christopolos, I., Kidd, A. and Beckman, M. (2002) 'Can extension contribute to rural poverty reduction? Synthesis of a six country study'. *Agricultural Research and Extension Network Paper* No. 123. London: Overseas Development Institute.
- Garforth, C. (2002) 'ADAS and the privatisation of advisory services in England and Wales' in IFPRI (2002) 'Extension and rural development: a convergence of views on institutional approaches?' Workshop November 12–14, 2002, International Food and Policy Research Institute, Washington, D.C.
- Garforth, C., Angell, B., Archer, J., and Green, K. (2003) 'Improving farmers' access to advice on land management: Lessons from case studies in developed countries'. *Agricultural Research and Extension Network Paper* No. 125. London: Overseas Development Institute.
- Hanson, J. and Just, E. (2001) 'The potential for transition to paid extension: Some guiding principles', *American Journal of Agricultural Economics* Vol. 83, p.777–784.
- Hoffmann, V., Lamers, J. and Kidd, A. (2000) 'Reforming the organisation of agricultural extension in Germany: Lessons for other countries', *Agricultural Research and Extension Network Paper* No. 98. London: Overseas Development Institute.
- Hubbard, M. (1995) 'The "new public management" and the reform of public services to agriculture in adjusting economies: the role of contracting'. *Food Policy*, Vol.20, No.6, pp. 529–536; Elsevier Science.

- Katz, E. (2002) *Innovative approaches to financing extension for agriculture and natural resource management. Conceptual considerations and analysis of experience*. Contributions from Armin Barandun. Lindau, Switzerland: LBL Swiss Center for agricultural Extension.
- Key, N. and Runsten, D. (1999) 'Contract farming, smallholders, and rural development in Latin America: The organization of agroprocessing firms and the scale of outgrower production'. *World Development*, Vol. 27, No. 2, pp. 381–401.
- Kidd, A., Lamers, J., Ficarelli, P., Hoffmann, V. (2000) 'Privatising agricultural extension: caveat emptor', *Journal of Rural Studies* Vol. 16, pp. 95–102.
- Kunstader, P. (1987) 'Swiddeners in transition: Luá farmers in northern Thailand' in B. L. Turner II and S. B. Brush (eds) *Comparative farming systems*. New York: The Guilford Press.
- Leonard, D. K. (1993) 'Structural reform of the veterinary profession in Africa and the New Institutional Economics'. *Development and Change* Vol. 24, pp. 227–267.
- Loolaid, U. (2002) 'Estonia: The role of contracting for private agricultural advisory services' in W. Rivera, and W. Zijp, (2002) *Contracting for agricultural extension. International case studies and emerging practices*. Washington D.C.: CABI Publishing.
- Nahdy, S. (2002) 'The role of extension in rural development. The Ugandan National Agricultural National Agricultural Advisory Services (NAADS) in Extension and Rural Development: a convergence of views on institutional approaches?' Workshop papers; November, 2002, IFPRI, Washington, D.C.
- Opiyo-Odongo, J. (2000) 'Roles and challenges of agricultural extension in Africa' in S. Breth, (ed.) (2000) *Innovative extension education in Africa*. Second workshop on training mid-career agricultural extension professionals. Sasakawa Africa Association, Mexico City, 2000.
- Padre, S., Sudarshana, and Tripp, R. (2003) 'Reforming agricultural journalism. The experience of *Adike Pathrike* in India'. *Agricultural Research and Extension Network Paper* No. 128. London: Overseas Development Institute.
- Plaas, K. (2003) 'Agricultural Development Project Vaida in Romania'. Case study submitted to the AgREN electronic discussion on privatisation of agricultural extension.
- Porter, G. and Phillips-Howard, K. (1997) 'Comparing contracts: An evaluation of contract farming schemes in Africa'. *World Development*, Vol. 25, No. 2, pp. 227–238.
- Proost, J. and Duijsings, P. (2002) *The Netherlands: Going Dutch in extension, 10 years of experiences with privatised extension* in W. Rivera, and W. Zijp, (2002) *Contracting for agricultural extension. International case studies and emerging practices*. Washington D.C.: CABI Publishing.
- Reifschneider, F., Byerlee, D., de Souza, F. (eds) (2000) *Competitive grants in the new millenium: A global workshop for designers and practitioners*. Brasilia: EMPAPA/IDB/World Bank.
- Rivera, W. (2001) *Agriculture and rural extension worldwide. Options for institutional reform in the developing countries*. Rome: FAO.
- Rivera, W., Zijp, W. and Alex, G. (2000) 'Contracting for extension. Review of emerging practices'. *Agricultural Knowledge and Information Systems Good Practice Note*. Washington D.C.: World Bank.
- Rivera, W.M. and Zijp, W. (2002) *Contracting for agricultural extension. International case studies and emerging practices*. Washington D.C.: CABI Publishing.
- Roling, N. (1995) 'What to think of extension? A comparison of three models of extension practice'. *AERDD Bulletin*. Reading, UK: University of Reading.
- Roy, Sabyasachi (2003) 'Livestock extension services by milk producers cooperatives: Indian experience'. Paper prepared for AgREN electronic discussion on privatised extension, March 2003.
- Shekara, C., and Charyulu, A. (2002) *Agriculture to agripreneurship: Success stories of agripreneurs*. Hyderabad: National Institute of Agriculture Extension Management (MANAGE).
- Sulaiman, R. (2003) 'Private extension in India: Recent Initiatives'. *Agricultural Research and Extension Network Newsletter* No. 47. London: Overseas Development Institute.
- Sulaiman, R. and V.V. Sadamate, (2000) *Privatising agricultural extension in India. Policy Paper* No. 10, New Delhi: National Centre for Agricultural Economics and Policy Research (NCAP).
- Sulaiman, R. and Van den Ban, A.W. (2003) 'Funding and delivering agricultural extension in India'. *Journal of International Agricultural and Extension Education*, Vol. 10, No. 1.
- Schwartz, L.A. (1994) *The role of the private sector in agricultural extension: Economic analysis and case studies. Agricultural Administration (Research and Extension) Network Network Paper* No. 48. London: Overseas Development Institute.
- Swanson, B., Samy, M. and O'Rourke, P. (2002) 'USA-Illinois: Contracting for precision agricultural services' in W.M. Rivera, and W. Zijp (2002) *Contracting for agricultural extension. International case studies and emerging practices*. Wallingford, UK: CABI Publishing.
- Umali, D. and L. Schwartz (1993) 'Public and private agricultural extension: Beyond traditional frontiers'. *World Bank Discussion Paper* No. 236. Washington D.C.: World Bank.
- Van den Ban, A. (2000) 'Different ways of financing agricultural extension'. *Agricultural Research and Extension Network paper* 106b. London: Overseas Development Institute.
- Van Weperen, W. (2003) 'The voucher system for information on fertiliser management in the Netherlands and Dairy farmers' platform: Intensive, high input dairy farming'. Case studies submitted to AgREN electronic discussion on privatisation of agricultural extension.
- Wolf, S. and Zilberman, D. (2001) *Knowledge generation and technical change: Institutional innovation in agriculture*. Norwell, M.A.: Kluwer.

AgREN

Network Papers cost £3.00 sterling each (plus postage & packing).
This paper may be downloaded free of charge from the AgREN website at: www.odi.org.uk/agren
Please contact the Network Administrator at:
The Overseas Development Institute, 111 Westminster Bridge Road, London SE1 7JD, UK
Telephone: +44 (0)20 7922 0300 Fax: +44 (0)20 7922 0399 Email: agren@odi.org.uk

□
Information about ODI and its publications can be found on our website at:
<http://www.odi.org.uk/>