

Extension, Education
and Communication Service

**Agricultural
and Rural Extension Worldwide:
Options for Institutional Reform
in the Developing Countries**



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Agricultural and Rural Extension Worldwide: Options for Institutional Reform in the Developing Countries

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Acronyms

AAS	Agricultural Advisory Service
ADAS	Agricultural Development Advisory Service
AKIS/ RD	Agricultural Knowledge Information System for Rural Development
AKS	Agricultural Knowledge System
AKT	Agricultural Knowledge Triangle
CFDT	Compagnie française pour le développement des fibres textiles (French-run Textile Development Company)
FAO	Food and Agriculture Organization of the United Nations
FCE	Fee-charging extension
FFS	Farmer Field Schools
FFMS	Farmers' Forest Management Schools
FSD	Farming Systems Development
FSR	Farming Systems Research
ICT	Information and Communications Technology
IP	Integrated Support to Sustainable Development and Food Security
NAADS	National Agricultural Advisory Service
NAESRI	National Agricultural Extension Systems Reform Initiative
NGO	Non-Governmental Organizations
OECD	Organization of Economic Cooperation and Development
SDRE	Extension, Education and Communication Service
SDRR	Research and Technology Development Service
SEAGA	Socio-economic and Gender Analysis
SEC	Strategic Extension Campaign
SPFS	Special Programme for Food Security
SYCOV	Syndicat des Producteurs de Coton de Vivriers
TCI	Investment Centre
T&V	Training and Visit Extension Management System
VERCON	Virtual Extension and Research Communication Network
WAICENT	World Agricultural Information Centre

Table of Contents

Acknowledgements	iii
Acronyms	v
Preface	1
Purpose and rationale	3
1. Agricultural and rural extension: definitions	7
1.1 Extension: a function	7
1.2 Agricultural extension: a knowledge system	7
1.3 Agricultural and rural extension: an expanded concept	9
1.4 Alternative extension approaches	11
1.5 Government's role in agricultural and rural extension reform	12
2. Global developments shaping extension	15
2.1 The new paradigm	16
2.2 Responding to the new paradigm	17
3. FAO's current programmes for agricultural and rural extension	19
3.1 Multiple extension approaches and purposes	19
4. Institutional reform: a new vision for agricultural and rural extension development	23
4.1 The contemporary institutional reform of extension	24
4.2 Market reforms	25
4.3 Non-market reforms	28
4.4 A dynamic view of extension institutional reforms	30
4.5 Vision and guiding principles for extension development	31
5. Reform initiatives	33
5.1 From pluralism to partnership	34
5.2 Partnerships with farmers and the private sector	36
5.3 Cost recovery schemes	36
5.4 Decentralization to lower tiers of government	37
5.5 Subsidiarity (decentralization) to the grassroots level	38
Concluding remarks	39
References	41
Figures	
Figure 1: Extension as a function in various sectors of society	7
Figure 2: Agricultural extension as part of AKS/AKIS	8
Figure 3: Extension reform strategies	24
Figure 4: A dynamic view of extension institutional reforms	30

Preface¹

The Food and Agriculture Organization of the United Nations (FAO) contributes considerably to the advancement of agricultural and rural extension as evidenced by its worldwide conferences, information exchanges, field programmes and projects.

There are, however, certain global developments that demand a fresh vision if the agricultural and rural extension institutions in the developing countries are to be revitalized and made more effective and efficient. This vision encompasses institutional reforms towards both market-oriented privatizing innovations and non-market decentralizing reforms, and constitutes the backdrop against which a new vision can be applied.

This paper reviews and draws on a broad range of existing reform options, and on the basis of this review proposes a number of initiatives for institutional reform in the developing countries. These strategies are intended to help FAO staff to provide guidance to the developing countries for the reform of their agricultural and rural extension systems.

The paper begins with definitions that distinguish between (a) extension as a function, (b) agricultural extension as part of a larger knowledge triangle, and (c) agricultural and rural extension as an expanded concept of knowledge and information systems. In many low-income developing countries, agricultural and rural extension is in disarray, which bodes ill for countries that should now accommodate the new paradigm which is increasingly being shaped by global trends towards market-driven and highly competitive agribusiness enterprises. Indeed, these trends highlight the tension that exists between the modern force of globalization and the traditional forces of culture, geography, and community (Friedman 2000).

The initiatives proposed in this paper draw on recent agricultural extension reform measures introduced in several high-income, middle-income and low-income countries. The focus, however, is on reform measures that promote food security and poverty alleviation among small-holders in low-income countries. The initiatives are broadly envisaged as applications of the principles set out in the FAO/World Bank document on *Strategic Vision and Guiding Principles* (2000) for promoting Agricultural Knowledge and Information Systems for Rural Development (AKIS/RD), and other frameworks emphasizing the changing extension environment (Neuchâtel 1999).

¹ This paper adopts a broad rural focus as opposed to a narrow agricultural focus, in line with the rural development strategy for reducing poverty and eliminating hunger adopted in the World Bank's paper on *Rural Development: From Vision to Action* (1997) and the FAO/World Bank's paper *Agricultural Knowledge and Information Systems for Rural Development: Strategic Vision and Guiding Principles* (2000).

The AKIS/RD vision calls for institutional reforms involving pluralism, cost recovery, privatization, decentralization and subsidiarity, with an emphasis on participatory approaches. These reforms constitute the main menu of options discussed in this paper. They include both market and non-market reforms. The FAO Extension, Education and Communication Service (SDRE) has begun exploring these initiatives to reform extension in the Philippines, Iran, Zimbabwe, Nigeria, Pakistan, Indonesia, Eritrea, Mozambique, Uganda, Yemen, and other countries, some of them in collaboration with the FAO Investment Centre Division (TCI) and the World Bank. The results of these efforts highlight the interest of policymakers in the developing countries to pursue extension institutional reform.

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Purpose and rationale

This paper outlines three agricultural and rural extension market reforms and two non-marketing reforms, at all times emphasizing stakeholder, and particularly end-user, participation in the approaches employed in these reforms. It also recognizes the need for non-farm microenterprise development initiatives, and advocates coordinating this effort with other international organizations. The paper recommends that FAO should explore these and related institutional reform options with the developing countries, as an important means of assisting them to revitalize their agricultural and rural extension systems.

In the present climate of change, poverty alleviation and food security are major concerns to FAO and its member states. This was evidenced at the 1996 World Food Summit, at which the representatives of FAO member countries pledged their dedication to alleviating poverty using every means available. Agricultural and rural extension is one of the means available to help alleviate poverty and improve food security. It promotes the transfer and exchange of information that can be converted into functional knowledge, which is instrumental in helping to develop enterprises that promote productivity and generate income.

In addition to technology transfer, agricultural and rural extension is a unique service in that it provides access by small farmers and the rural poor living far from the urban centres to non-formal education and information services. While it can provide these populations with services to increase their productivity, their food security will depend on institutional development and income-generation, together with increased food crop output. Studies of food security and malnutrition (Von Braun 1993) have concluded that the primary cause of malnutrition in the less developed countries is not the scarcity of food so much as distribution problems, and the existence of poverty. In a major report on world agriculture, the World Bank stated: «...in the long run, people can attain food security only if they have adequate income.»

On the subject of productivity, FAO's Director-General notes that «farm output by small farmers in low-income food-deficit countries is feasible (often using quite simple and low-cost technologies) and can, under most circumstances, achieve the combined objectives of improving rural livelihoods, increasing food supplies within rural communities, having a multiplier effect on economic growth, and reducing foreign exchange expenditure on food imports» (FAO 2001). Similar assumptions underlie the Sustainable Livelihoods Approach espoused by the UK's Department for International Development, the Sasakawa Global-2000 programme and the Soil Fertility Initiative. It is becoming increasingly more evident that the long-term solution to world hunger lies in "helping the poor to produce more and better-quality staple food more efficiently in order to take the first step out of poverty" (Diouf

2000). This implies the need to raise farm productivity per unit of input, improve the competitiveness of food marketing systems (so that local producers have incentives to raise productivity when faced by the reality or prospect of cheaper food imports), and raise the incomes of the poor throughout the developing world. Certainly, if farmers are to increase production, adequate attention needs to be paid to helping them keep their production costs per unit competitive with prevailing market prices, which are notoriously fickle (FAO 1987).

Yet, as the FAO's *The State of Food and Agriculture 2000* concludes:

Reducing poverty and food insecurity is not simply a question of enhancing agricultural productivity and production or of generating more income. Institutions are the structuring features that command access of people to assets, to voice and to power over their lives and that regulate competing claims to limited resources. It is fundamental to address those institutional, governance and politico-economic factors that tend to exclude individuals and population groups from progress.

Perhaps it goes without saying that extension as an institution is only one component in agricultural and rural development processes, and that it is only one vehicle for fostering change in agricultural and rural development. Yet the importance of knowledge and the rapidity of its transfer and exchange in the modern world are increasingly recognized as central to trade and development, in high-income as well as in low-income countries (Drucker 1998; Zijp 1994). Extension's high economic rates of return indicate its potential to bring about change (Birkhaeuser, Evenson & Feder 1988). The world has entered a new economic system that has evolved from «structural adjustment» and trade liberalization, and also from technological progress and advances in telecommunications and greater interdependence of the world labour, product, and financial markets. While knowledge and capital are becoming increasingly more central to achieving success in this new economic system, some countries have yet to consider the value of making knowledge available through revived extension services. The pressures of the new economy may soon induce these countries to re-examine their extension institutions and their extension institutional arrangements with a view to reforming and revitalizing them.

The extension reforms being adopted worldwide offer new ways of viewing and addressing the issue of agricultural and rural development.

Change today is global and rapid. A new paradigm has emerged towards a market-driven, agribusiness orientation, stressing comparative advantage in a highly competitive global market. This globalization and market orientation is placing new pressures on governments and their people to produce more, for both domestic consumption and trade.

At the same time, the developing countries have implemented structural adjustments that have made them reduce public spending on services. But the international organizations are nevertheless urging the developing countries to foster educational activities and enhance their human capital. The commitment to poverty alleviation and food security is an expression of that concern, especially for rural areas remote from the urban centres.

Although learning via agricultural extension services is only one component of the complex process of development, studies suggest that this process produces

high economic rates of return (Birkhaeuser, Evenson, & Feder 1988). Few would deny that ***work-related functional knowledge is central to economic success***. In the present context of change, one of the challenges facing FAO is how to promote the economic success of the countries that represent the billion or so people who lack the functional knowledge which agricultural and rural extension can help to provide.

1. Agricultural and rural extension: definitions

1.1 Extension: a function

Extension, in general terms, is a function that can be applied to various areas of society. It operates in the industrial, health and education sectors, as well as agricultural and rural development. Originally derived from «university extension» (Mosher 1976), the term «extension» is therefore applicable to various areas of development.

Figure 1: Extension as a function in various sectors of society

Education	Agriculture	Rural Development	Health	Industry
University Extension (Continuing Education)	Agricultural Extension	Rural Development Extension	Health Extension Services	Industrial Extension

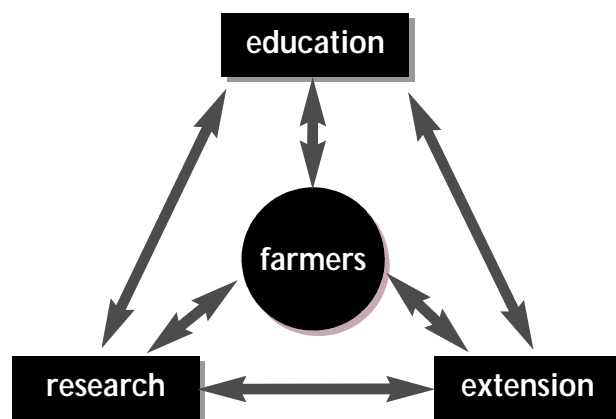
As Figure 1 illustrates, extension functions in various sectors of society. In earlier discussions on the World Bank-sponsored Training and Visit (T&V) extension system, Israel (1982) stressed the fact that T&V principles could be applied to other sectoral systems involved in the delivery of nonformal education. It also warned, however, that T&V was based on classical management principles that were unlikely to be viable in the developing countries - a lesson that was only fully appreciated in the 1990s and that has since led in part to the current emphasis on participatory management principles.

1.2 Agricultural extension: a knowledge system

Agricultural extension operates within a broader knowledge system that includes research and agricultural education. FAO and the World Bank refer to this larger system as AKIS/RD (Agricultural Knowledge and Information Systems for Rural Development). The OECD countries refer to it simply as the Agricultural Knowledge System (AKS). Others describe the three pillars of this system – research, extension and agricultural higher education – as «the agricultural knowledge triangle» and suggest that since the three pillars involve complementary investments they should be planned and sequenced as a system rather than as separate entities (Eicher 2001). Linking the triangle's institutions with their common clientèle, namely the farmers, and with each other, also requires systematic planning.

At the second OECD AKS conference in January 2001, the representatives of agricultural research, education and extension institutions, and government officials with AKS policy responsibilities stressed the opportunities for AKS to address the wider societal issues associated with agriculture. The participants confirmed that AKS could play a central role in developing research, education and extension/development programmes oriented towards these wider society issues, which can be expected to expand (OECD 2001). In this scenario, the planning and sequencing of AKS as a single system, as Eicher (2001) suggests, becomes even more imperative. However, much has been written on implementing AKIS linkages, especially in research and extension (Pray & Echeverría 1990; Kaimowitz 1990; Crowder & Anderson 1997) without any significant results. In this age of change, one promising idea appears to be the promotion of linkages through funding grants requiring cross-institutional activity between AKIS systems and their clientèle.

Figure 2. Agricultural extension as part of AKS/AKIS



As Figure 2 illustrates, agricultural information systems for rural development link people and institutions, to promote learning and to generate, share and use agriculture-related technology, knowledge and information. According to the *AKIS/RD Strategic vision and guiding principles* (FAO/World Bank 2000) the system integrates farmers, agricultural educators, researchers and extensionists, enabling them to harness knowledge and information from various sources to improve farming and livelihoods. Maguire (2000) suggests that the concept and practice of agricultural education should be redesigned in the developing countries as education for rural development and food security. Indeed, many needs are rapidly emerging such as trade-related education on agro-health (plant and animal health and food safety), value-added agro-processing, and agro-market competitiveness. These needs arise from the obligations that countries take on as members of the World Trade Organization (WTO) and the increasing urgency to build competitive advantages aimed at global agricultural market niche opportunities.

In principle, agricultural extension receives relevant information from the agricultural education system and feeds back field observations to this system. Extension is also professionally linked to the agricultural vocational and higher education systems in the sense that these systems also produce the agents who work in extension. The relationship between agricultural extension and agricultural research is even closer, because the knowledge that agricultural extension transfers is usually generated by agricultural research through applied and adaptive agricultural research development.

Within the agricultural sector, however, agricultural extension may be interpreted narrowly or broadly, which complicates the debate (Rivera 1987). In a strict interpretation, the only purpose of agricultural extension is to disseminate information to raise the production and profitability of the farmers (agricultural production performance).

In a broader interpretation, the purpose of agricultural extension is to advance not alone production knowledge but the whole range of agricultural development tasks, such as credit, supplies, marketing and markets (agricultural process development).

In the broadest interpretation, agricultural extension provides nonformal – agriculturally related continuing adult education - for multiple audiences: farmers, spouses, youth, community, urban horticulturalists (continuing agricultural education and community development) and for various purposes (including agricultural development, community resource development, group promotion and cooperative organizational development). In some countries all three of the above orientations operate, e.g. the U.S. Cooperative Extension System. Such extension systems encourage the empowerment of farmers in various ways, including participation in programme planning and decision-making. By contrast, in many countries (e.g. India, Tunisia, Zimbabwe and Zambia) agricultural extension is linked to agricultural production services.

1.3 Agricultural and rural extension: an expanded concept

When agricultural extension is combined with rural extension goals, the extension function ranges even more widely in its purposes. Rural extension, for instance, includes non-agricultural activities such as microenterprise development (Echeverría 1998), a priority which is being advanced by the Inter-American Development Bank.

Non-farm rural microenterprise development. Most rural people depend upon multiple sources of income, such as petty trade, primary production, remittances, and casual employment. In short, rural people are not dependent solely on agriculture or natural resources for their livelihoods. As Carney (1998) points out, «these might provide the basis for their survival but it may well be that the best prospects for significant livelihood *improvement* lie outside the natural resources sector in the generation of off-farm income». In addition to microenterprise development there is also the option of reaching the poor through rural public employment, i.e., labour-intensive rural public works projects (Ravallion 1990).

Since the AKIS/RD document combines rural with agricultural goals, and since rural development involves both farm-related and non-farm-related activities, it seems appropriate for certain extension programmes to be engaged in activities beyond those already mentioned. FAO could promote the development of agriculture-related micro-enterprises in rural areas where such a priority would make sense for extension programmes, and in this regard it might launch a special alliance with relevant organizations such as the Inter-American Development Bank.

Technical extension. Agricultural and rural extension is the responsibility of various technical and service units, and serves many purposes. The various technical units within FAO indicate that agricultural extension is a function pursuing many different purposes: livestock development, forest use and conservation, fisheries engineering and capture, food and nutrition education, as well as well as crop development. Even in programmes designed to foster agricultural crop production, extension may be concerned with providing information on other crucial issues such as food storage development, processing, farm management, and marketing. FAO has advocated and pursued all the above purposes of agricultural and rural extension at some time or another.

Marketing extension. Other purposes of agricultural and rural extension include marketing extension. Marketing extension (Abbott 1984; FAO 1987, and Narayanan 1991) provides information on the post-harvest treatment of speciality crops and provides an important service in countries trading in food crops, including such fragile products such as bananas and cacao. Other, different types of marketing information services referred to as «market extension» also exist; these services provide information on variations in commodity prices; knowledge about where to sell some products; information on problems to do with the quality, availability and prices of inputs, and on the actual level of competition in the markets (Crowder 1997; Shepherd 1997). These market information services should not be confused with marketing extension services that aim at improving the preparation and process of moving agricultural goods to market.

Farmers' associations. Agricultural and rural extension services can also help farmers and produce processors to organize themselves to meet their mutual agricultural interests. A long tradition in extension is group promotion and group organization, and FAO's commitment to these purposes is well known. Indeed, one of the Organization's many ways of promoting people's participation in development is through independent agricultural and rural development group associations (FAO 1994, 1995, 1997, 1998, 2000; Van Heck 1990). Financing economic self-reliance and the participation of the members in their organization's activities is of central importance in such efforts to promote farmers' organizations (FAO 1995; Rouse 1999).

Some argue that extension can most effectively carry out its mandate, not by working directly with individual farmers but by working indirectly with and through farmers' groups or organizations (Byrnes 2001). In «Cotton, democracy and development in Mali» Bingen (1998) recounts the emergence of the National Union of Cotton and Food Crop Producers (Syndicat des Producteurs de Coton de Vivriers, SYCOV), and highlights the connection between small farmer organization, democracy and development.

Emerging purposes. As populations grow and rural peoples flock to the cities, extension may (and already does in some countries) have to deal with urban and suburban clients (FAO 2000). What is currently considered «agricultural and rural extension» may eventually become «food and agriculture, rural and urban extension». In fact, extension in high-income countries is already providing information and education services in urban areas, extending beyond technical agriculture and rural development alone.

Urban extension is a potential growth area for information transfer. As such, it addresses new audiences and new programmes, and reflects the world's rapid

urbanization. In Latin America, for instance, urbanization (74% in 1998) will affect 83 percent of the population by the year 2020 (Sanchez-Griñan 1998). This process will involve socio-economic and demographic changes that will affect food and nutrition, as well as epidemiological, institutional and socio-demographic changes. The same process is apparent in Asia and Africa, as well as in North America and Western Europe. Food security, the employability of youth in the food industry, environmentally sound practices by small urban businesses, and other food and agriculture-related programmes are likely to demand the attention of governments which are currently dismantling extension programmes. Conceiving of extension purely as an agricultural production, rather than an educational service is short-sighted and limited.

1.4 Alternative extension approaches

The Extension, Education and Communication Service (SDRE) issued a valuable overview of extension approaches and methodologies in 1988 authored by George Axinn and entitled *Guide on Alternative Extension Approaches*. This overview is still a valid reference work and provides a basic examination of the various extension approaches current at that time. The guide distinguishes between eight different approaches. The terms «approach» and «methodology» when referring to extension are often used interchangeably, and it would be pedantic to try to separate them and their respective conceptual meanings in this paper. Suffice it to say that while the terms may be used interchangeably, they must be differentiated from the term «options» used in this paper to refer to reform strategies involving institutional arrangements.

Most of the approaches to which Axinn refers have been supported by FAO at various times. These eight main approaches are simply listed below, for sake of brevity, together with their respective success criteria.

- (1) **The general agricultural extension approach.** Success is measured in terms of the rate of take-up of the recommendations, and increases in national production.
- (2) **The commodity specialized approach.** The measure of success is usually the total production of the particular crop.
- (3) **The training and visit approach.** Success is measured in terms of production increases of the particular crops covered by the programme.
- (4) **The agricultural extension participatory approach.** Success is measured by the numbers of farmers actively participating and benefiting, and the continuity of local extension organizations.
- (5) **The project approach.** Short-run change is the measure of success.
- (6) **The farming systems development approach.** Success is measured by the extent to which farming people adopt the technologies developed by the programme and continue using them over time.
- (7) **The cost sharing approach.** Success is measured in terms of farm people's willingness and ability to share some of the cost, either individually or through their local government units.
- (8) **The educational institution approach.** The measure of success is the farming people's attendance at and participation in the school's agricultural extension activities.

This is certainly not intended to be an exhaustive type listing. More importantly, Axinn's characterization of the different approaches in terms of their success tends to distort some of them. It nevertheless helps to distinguish certain basic approaches.

Why is there such a plethora of extension approaches? Some ideas change; paradigms shift; and purposes vary. But lessons are also learned, and then shared. It becomes clearer why one or other approach has succeeded or failed, and which aspects of a particular programme are useful and which are not. Even a cursory review of FAO's agricultural and rural extension approaches indicates the diversity of its involvement.

Clearly, agricultural extension involves many different approaches and methodologies. It is also directed towards very distinct content areas. And it is managed and delivered through a variety of institutional arrangements. It can therefore reasonably be argued that ***no single approach best suits extension development in all circumstances, just as there is no one single approach that best suits development. Otherwise the problems of extension and, for that matter, of development, would have been solved long ago.***

1.5 Government's role in agricultural and rural extension reform

Government plays an important role in agricultural and rural development, although its relationship to extension funding and delivery is changing. Even when agricultural extension is farmer-led, government — at whatever level — must be concerned with production, the impact of agricultural practices on the environment, regulations governing quality standards, food safety, and in general the well-being of the people. There has arisen a myth about «the powerless state». However, it is no myth that government extension has in many cases become irrelevant and has been by-passed by NGOs and private commercial extension. In the final analysis, though, it is government that decides whether or not to become directly involved in agricultural and rural extension.

Governments are facing new extension challenges: meeting the need to provide food for all, raising rural incomes and reducing poverty, and sustainably managing natural resources. These critical challenges exist in a rapidly changing world. Globalization, new technologies, the new relationships developing between the public and private sectors, the multi-disciplinary nature of agriculture, heterogeneity between and within countries, the geographic dispersion of rural people — all these realities are putting new pressure on the developing countries in their efforts to develop. This being so, the state must take on a central role in financing advisory services which are important, but not financially rewarding for the private sector. In addition to providing advice on the management of natural resources, integrated pest management and advisory services to the very poor, the state has a critical role to play in establishing markets for commercial and farmer-to-farmer extension services, providing rural communication infrastructure, and developing human resources. The advancement of pluralistic partnerships is crucial, given the multiplicity of tasks confronting developing countries.

For those governments that have not yet done so, the advantages and disadvantages of institutional reform deserve consideration. In this regard, governments as well as international organizations need to benchmark the pros and cons of newly reformed institutional arrangements for agricultural and rural extension systems, and learn from each other. Institutional reforms appear to have been successfully carried through in various countries and may be of value to governments when considering the possibility of reforming their own agricultural and rural extension. However, no single reform measure can be considered a panacea. All are «work in progress» and depend on the commitment, resources, capacity, attitudes and motivations of the stakeholders at various levels.

2. Global developments shaping extension

The role of agricultural extension is vital to the diffusion of new technology, but extension is currently failing (Malawi 2000) or moribund (Eicher 2001) in many African nations. In other low-income developing countries, extension is in disarray or barely functioning at all. Staff are bloated, under-trained, not mobile, and therefore not proactive. There is also little, if any, coordination between extension and research, and even less between extension and agricultural higher education.

Meanwhile, other forces are affecting the development of agricultural and rural extension services emphasizing issues and challenges for much needed reforms (Qamar 2000). A «complex» of extension providers has emerged, involving non-profit non-governmental organizations and for-profit private companies, and farmer organizations and commercial associations of extension specialists have also come to the fore. In some cases, these non-public sector extension service providers hire public sector extension agents on secondment, which has been termed «contracting-in» (Anderson & Crowder 2000).

The world's expansion beyond the global village is a reality that has strongly affected public sector extension. Globalization is inextricably linked to privatization, and countries are finding themselves confronted by a new and highly competitive global market. Major economic restructuring is taking place in both the developed and the developing countries, and has greatly changed the balance of responsibility between the public and private sectors (Fresco 2000). In many cases, trade liberalization places the developing countries at a disadvantage in the global market. The question arises: In this climate of change, what is FAO's role?

Increasingly privatized, agricultural information has in fact become a price-tag «commodity» (Buttel 1991; Rivera 2000). This 'commodification' of agricultural knowledge is a major factor in the present worldwide transformation of public sector agricultural extension and the advancement of private sector technology transfer systems. This change towards information commodification reflects the privatization of information and agricultural industrialization (Wolf 1998). One result is that farmers, especially in high-income and middle-income countries, have begun to pay for extension services. While this may not yet be the case in many low-income countries, the trend indicates the value placed on agricultural information. One way of reducing poverty is to generate incomes through the training and information-sharing that agricultural and rural extension services can provide (Yonggong 1998). It therefore appears to be in the interests of low-income countries to promote services to provide **practical, income-generating agricultural information** to their rural populations. Apart from the immediate value of educating their rural populations in the financial value of agricultural information, they will also help them to reach a financial level at which they can

pay for such services. ***Contemporary extension reform strategies demand attention because they have long-term consequences on economic growth and short-term consequences in terms of improving rural situations by helping to reduce poverty.***

2.1 The new paradigm

The world has in many ways become smaller. Globalization has occurred with the ease and rapidity of the development of transport and telecommunications. There is a tendency towards greater transnational corporate development. Some argue that there has been a «power shift» (Mathews 1997) from public sector dominance to private sector hegemony. As this development emerged, fiscal problems in the public sectors of the developing countries became apparent, and donor organizations began to impose structural adjustment programmes to bring the developing countries into line with the financial demands of a stricter financial «world order». These structural adjustment programmes have strongly impacted the national governments of less developed countries — many of whom were, and continue to be, under pressure to reform their public sector systems.

A new paradigm towards market-driven reforms and with an agribusiness orientation has resulted from this, severely affecting the funding and delivery of agricultural and rural extension. These changes have produced a turning-point, and are having radically repercussions in term of the way public sector agricultural extension is conceived and practised.

The agricultural sector faces increased competitive challenges. Urban centres will continue to attract people from rural areas. The advancement of science and technology will increasingly pressure countries to modernize. Technologies must be tailored to new contexts if they are to be effective, and such adaptations require an educated workforce.

Preparing an educated workforce will require considerable investment in education, in-service job training (e.g. for under-trained agricultural extension and rural development agents), and the knowledge exchange component of the technology system. At the same time, governments will probably find it difficult to continue to operate *status quo ante*. New strategies are taking on primary importance for policy-makers concerned with meeting the demands of the global market place, while at the same time catering for the needs of their rural populations. Low-income countries are faced with the inescapable challenge of qualitatively and quantitatively increasing the rate at which they are moving forward if they are to survive in the global market place. Yet it is still obvious that there is under-investment in extension, and in research and agricultural education (Swanson 1997).

In the final analysis a number of policy questions will need to be addressed again: Who will pay for such services as agricultural and rural extension? Who will deliver the services? And equally important: Who is to be served? How will they be served? and, for what purpose?

In some cases, the solution to the developmental problem may be not to improve agriculture. Where there is little potential, an agricultural programme cannot have much impact and there will be only small returns on investment. Out-migration in the short-term, or industrialization in the long-term, may be the appropri-

ate solutions. Where agriculture is a viable development option, commitment should be clear-cut, recognizing that there will be different target groups to be served.

The implication of target group analysis is that there must necessarily be different extension systems to meet a wide variety of different needs. Extension or extension-related services will become more **purpose-specific, target-specific, and need-specific**. In some instances, such services will transmit high-tech messages. In others, farm management skills will be developed (Ngala 2000). In some instances, farmers will organize themselves for marketing purposes. In short, a wide range of institutions will be established and developments take place, expanding the range of educational, organizational and technology exchange services for agricultural and rural development.

2.2 Responding to the new paradigm

At this juncture, farmers have to be convinced that extension systems and the information they communicate are valuable for income-generation in particular and for improving their living standards in general. Assisting resource-poor farmers with appropriate technology may provide the opportunity for rural households to increase their productivity and incomes. In some cases, the new opportunities envisaged by farmers may slow down rural-urban migration.

Small, low-resource farmers represent a vast segment of developing country populations; higher incomes, education, and greater involvement in development can also encourage them to make more efficient use of the land, labour, and capital resources in rural areas. This can be done in several ways, according to Swanson (1997); for instance, (a) small farm households could be helped to intensify and diversify their farming systems, (b) small farmers need to be brought into the market economy, (c) small farmers also need encouragement to practise agricultural sustainability, and (d) small farmers need to be helped to organize themselves around their mutual agricultural interests. Swanson's language may appear supply-driven and top-down, but the basic aims expressed are in line with current development needs.

There is a growing consensus that to create a **demand-driven technology system** there must be direct involvement by farmers in identifying problems, establishing priorities, and carrying out on-farm research and extension activities (Rivera, Zijp & Alex 2000). Demand-driven extension is desirable in many instances, although a balance must be struck between the demands of government and those of farmers in different economic categories (e.g. estate, emerging, low-income, and marginal). Striking a balance between institutional «supply systems» and farmer-initiated demand-driven extension/technology systems should in many cases be the ultimate goal of countries eager to advance to higher stages of development and competitive power.

3. FAO's current programmes for agricultural and rural extension

FAO makes a major contribution to developing agricultural and rural extension institutions and programmes. It is actively committed to fostering multiple extension approaches and methodologies, organizing world conferences, exchanging information with external sources, and undertaking many field activities. Underlying this diversity, however, is FAO's special concern for participatory approaches and the development of equitable processes. It is this emphasis on participation and people-centred approaches that distinguishes FAO, and forms a central concern in its promotion of agricultural and rural extension.

3.1 Multiple extension approaches and purposes

FAO's assistance in support of agricultural and rural extension tends to involve various approaches and distinct methodologies for interacting with the clientèle and for interchanging information.

One outstanding FAO participatory approach is known as **Farmer Field Schools**. Farmer Field Schools (FFS), originally associated with promoting Integrated Pest Management, work at the grassroots level to advance the principle of stakeholder participation in programme decision-making with a view to eventually giving full responsibility to stakeholders for programme development. FFS underscores FAO's commitment to the development of agricultural extension participatory approaches — in line with its general philosophy and practice of seeking to advance equitable development. Originating in projects initiated in Asia in the mid-1980s, FFS has spread to other regions. And today, FFS is beginning to develop in Latin America as one of the alternatives to traditional national extension activities, in such countries as Bolivia, Ecuador and Peru. In its efforts to promote farmer-led extension FFS is proving to be a viable alternative to centralized and state-owned extension. The approach is currently one of the forefront extension-related activities sponsored by FAO, and the principles and methodology of the approach are being replicated by other technical services such as Irrigation and Water Use and Forestry. In fact, the Irrigation and Water Use technical unit has already successfully piloted an FFS project in Zambia.

«A Note on the Sustainability of the Farmer Field School Approach to Agricultural Extension» (Quizon, Feder and Murgai 2000) provides an interesting perspective on FFS as an alternative learning or problem-solving approach. They view FFS not as an extension approach for disseminating information, but as an empowerment and citizenship opportunity. At the same time, they raise FFS cost issues and their relevance to the sustainability of this approach.

FAO's Forestry Policy and Institutions Branch has also adopted the FFS approach, but has changed the name to suit its community forestry development purposes: **Farmers' Forest Management Schools (FFMS)**. According to Tanaka (2001), «FFMS has two objectives. The one is to allow forest users flexible community forest management for multiple use. FFMS assists forest users to gain/generate the knowledge, critical skills and self-confidence to make decisions about forest management based on their own experiments, observations and analyses so that the forest can sustainably provide them benefits suitable to their livelihood needs. The other is to provide a platform for negotiation among various forest users in the process of determining intended use of community forest. This process also helps them build the sense of ownership through delegation of decision-making and forest management process».

Another participatory programme approach is **Farming Systems Development**. Farming Systems Development (FSD) began in the 1980s as Farming Systems Research and Development and later became known as Farming Systems Research and Extension. On-farm research is seen as a link between farmers, technical research and extension (Collinson 1984). This approach has a dual character. Sometimes it is hailed as a multi-institutional, team approach; at other times it is considered a production-oriented approach (Berdegúe 2000). The term 'Farming Systems Research' (FSR) tends to suggest a production-oriented approach, while the term 'Farming Systems Development' (FSD) suggests more of a team-oriented approach involving the farmers in the process. FAO has supported both these system approaches (Collinson 2000). A valuable FAO study on FSD was recently published entitled, *Challenges and Priorities to 2030* (FAO 2000).

FAO's technical units also maintain or utilize extension services for their specialty purposes. For instance, Fisheries is creating **distance education** tools to extend information for modern fisheries engineering and fisheries capture techniques. This computer-based, distance education programme promotes «learning by doing». Distance learning is not only a major development in information and communications technology (ICT) but is already a leading instrument for extending information and knowledge.

The livestock development unit is also engaged in information exchange, especially for **preventive animal health** services. Extension methods are employed to reach pastoralists and breeders. Animal health is a major concern, as Europe's current problems aptly indicate. As the list of those services providing a specialized knowledge base and new technology grows, the different purposes for extending information become obvious.

The value and importance of extension for different purposes extend even into areas that do not directly create extension services. **Nutrition services**, for example, while not engaged in extension *per se*, cooperate with extension services to respond to food crises in the developing countries and to manage food distribution and education.

Likewise, the Socio-economic and Gender Analysis (**SEAGA**) programme incorporates extension concerns. As an analytical programme aimed mainly at training development workers with methods and tools for conducting socio-economic and gender analysis, SEAGA seeks to heighten the awareness of gender issues and strengthen the capacity to incorporate gender considerations into development. Adopting a bottom-up approach to identifying development priorities, SEAGA

promotes the participation of all the stakeholders, emphasizes gender roles and relations, and includes disadvantaged people as one of its priorities.

An interdisciplinary programme, the Integrated Support to Sustainable Development and Food Security Programme (known simply as **IP**), has been set up to develop and implement an integrated strategy that takes into account the main social, economic, environmental and technical aspects of sustainable development. One of the seven areas addressed by IP is the reform of agricultural extension systems to support poverty reduction, the integration of gender issues and sustainable development.

Apart from the technical extension programmes just mentioned, the Extension, Education and Communication Service (SDRE), which is the lead technical unit responsible for agricultural extension and training, education, rural youth, and communication for development, has embarked on several innovative programmes, including the National Agricultural Extension Systems Reform Initiative (NAESRI). Initial work under **NAESRI** includes strengthening decentralized extension services (Philippines), developing the coordination mechanism for pluralistic extension delivery (Zimbabwe), conduct best practices studies (Indonesia, China), draw up participatory extension delivery strategies for female extension workers (Pakistan), identifying the extension service needs of physically disabled farmers (Iran), developing of extension strategies to deal with HIV/AIDS (Malawi, Zambia, Uganda), and encouraging the wider adoption of hybrid rice cultivation (India, Viet Nam). A comprehensive extension and production support strategy, and a participatory farmer group extension approach have also been developed in support of the FAO Special Programme for Food Security (SPFS) in Pakistan and Tanzania, respectively. Training modules on integrating the population and environmental messages into ongoing extension programmes have been prepared in Bangladesh, Egypt, Indonesia, Nepal, The Philippines, and Thailand. Monitoring and evaluation guidelines have been developed for national extension systems in the Caribbean. A number of country studies on AKIS/RD have been initiated in collaboration with SDRE's sister unit, the Research and Technology Development Service (SDRR). SDRE has also developed the Strategic Extension Campaign (SEC) methodology, which has been implemented in a number of developing countries (Adhikarya, 1994).

SDRE, with SDRR and the World Agricultural Information Centre (WAICENT), has initiated **FarmNet**, a community-based programme that aims at creating farmer information networks for agricultural and rural development. This programme uses communication processes and tools to facilitate the generation, gathering and exchange of knowledge and information among rural people, and between them and the intermediary organizations that work for them. The Uganda National Farmers' Association is one of the organisations that have shown interest in the programme. SDRE and WAICENT are jointly developing another programme, **VERCON** (Virtual Extension and Research Communication Network). Unlike FarmNet, VERCON is institution-based and aims at promoting communications between research and extension systems. These initiatives seek to exploit the great potential of electronic mass media and telecommunications to improve the transfer and use of agricultural information in the developing countries.

WAICENT and SDRE are developing a new participatory programme on «Information in Support of Sustainable Livelihoods». While still in progress, this

sustainable livelihoods programme plans to promote a «mix of media» and various processes, procedures, methods and tools for promoting participatory information exchange between indigenous groups and the external environment.

In sum, FAO assists the developing countries in numerous and varied ways with the development of agricultural and rural extension. One common feature of these different endeavours is the participatory involvement of the people being assisted. All of the above-mentioned efforts — e.g. FFS, FFMS, NAESRI, FarmNet and Sustainable Livelihoods — encourage stakeholder involvement in the extension decision-making processes. Empowering local communities and small farmers in the use and development of extension services using participatory approaches remains one of FAO's most central and important goals.

In general, FAO's ground-level programmes underscore a number of goals aimed at fostering rural people's advancement through agricultural and rural extension services. These goals include (a) improving the skills of farmers, extensionists and extension managers; (b) empowering farmers through participatory extension; (c) assisting special end-users, especially women; (d) cooperating with other agencies and organizations in extension development; and (e) assisting governments in extension policy formulation and programme development. Improving the relevance and effectiveness of agricultural extension activities for women farmers deserves priority status in any consideration of extension institutional and programme development (Das 1995). FAO's programmes reflect the diversity and stress the continuity affirmed in the framework of its Mid-term Plan and implemented through its technical cooperation programmes. The Organization's current programmes set the stage for what to do next.

4. Institutional reform: a new vision for agricultural and rural extension development

In an effort to respond to the new paradigm, countries worldwide have adopted a variety of institutional reforms. These reforms are either market-oriented or non-market-oriented (Smith 1997). This distinction, illustrated in Figure 3, provides an imperfect but hopefully useful framework for considering these reforms as individual, non-overlapping constructs. Following the discussion of Figure 3, a dynamic view of extension institutional reforms is presented in Figure 4 which suggests possible interconnections among the various constructs. Inferences drawn from the two Figures will shape the discussion in the final section.

The recent adoption by FAO and the World Bank of a fundamental vision and guiding principles for developing agricultural knowledge systems forms the focus of this section. This vision and these principles are reviewed in relation to the plethora of the ongoing agricultural and rural extension reforms.

As a prelude, it is worth noting that the types of extension reforms being enacted are not necessarily new. Decentralization is certainly not new to extension. In some countries extension is historically decentralized, and devolved authority has long existed in Australia, Brazil, Canada, Germany, India and the United States. Partial privatization has existed in France since the 1960s. Participatory extension methods are a traditional aspect of extension in Japan and Taiwan. Pluralistic systems have a long history in Finland. What is new, however, is the extent of globalization and, as Fresco notes (2000), the major economic restructuring in both the developed and the developing countries which has greatly tipped the balance between the public and private sectors.

The reforms underscored in this document are also not new to FAO. SDRE has been working for several years in various countries, francophone, anglophone and lusophone, to promote such reforms as decentralization, participation, and provider pluralism. Examples of these efforts in the francophone countries are FAO's work in the Congo (FAO 1997), Rwanda, Guinea-Bissau, and the Central African Republic. References to the latter efforts exist only in internal FAO technical documents. Exploratory efforts towards pluralism have been carried out in Mozambique and Zimbabwe. Subsidiarity has become part of the current drive towards reform in Uganda. The Philippines, Indonesia, Iran and Yemen are other examples of efforts at decentralization aided by SDRE. Various aspects of these reforms have, in fact, been integrated in these countries, demonstrating where they overlap and their complementarities. Nevertheless, what is new is the growing commitment of FAO to promoting these reforms as measures that other developing countries should consider. SDRE's initiative NAESRI is evidence of this phenomenon.

4.1 The contemporary institutional reform of extension

Global developments are shaping extension even more radically than other institutions in the agricultural knowledge systems. Contributing to this drive to reform extension is the new paradigm supporting market-driven income-generation.

A considerable variety of public sector reform strategies have emerged, and can be categorized in different ways. These extension reforms are organized in this paper under two main headings: **market reforms** and **non-market reforms**. According to this distinction, market reforms encompass four major reform strategies: revision of public sector extension systems, pluralism, cost recovery, and total privatization. Non-market reforms comprise two main reform strategies: (a) decentralization, transferring central government authority to lower tiers of government, and (b) subsidiarity, transferring or delegating responsibility, sometimes by abolishing authority over extension, to «the lowest level of society as is practical and consistent with the overall public good» (Porter 2001). Figure 3 illustrates these reform strategies.

Figure 3 employs two illustrations, distinguishing market-oriented from non-market-oriented structural reforms. The two illustrations highlight the main strategies adopted worldwide by countries undertaking public sector institutional reform.

Figure 3 - Extension Reform Strategies

		MARKET REFORMS	
		FUNDING	
		Public	Private
DELIVERY	Public	Revision of public sector extension via downsizing & some cost recovery (Canada, Israel, USA)	Cost recovery (fee-based) systems (OECD countries, previously in Mexico)
	Private	Pluralism, partnerships, power sharing (Chile, Estonia, Hungary, Venezuela, S. Korea, Taiwan)	Privatization (total) Commercialization (The Netherlands, New Zealand, England & Wales)
		NON-MARKET REFORMS	
Political Fiscal Administrative Issues		Decentralization to lower tiers of government (Colombia, Indonesia, Mexico, The Philippines, Uganda & others)	Transfer (delegation) of responsibility to other entities (Bolivia, to farmer organizations; Ecuador, mixed with farmer-led NGO programmes; Peru, extension devolved to NGOs)

The countries mentioned in Figure 3 provide illustrations of where particular strategies have been employed. However, the association of a country with a particular strategy should not be seen as exclusive but rather as indicative of the reform being undertaken in that country. In the final analysis, several different reform directions may be pursued in any one country. This is notably the case in Germany, where three distinct agricultural extension systems exist side by side (Hoffmann, Lamers & Kidd 2000).

Participatory extension systems could exist as part of the above market and non-market reforms, as noted earlier, because they are essentially an extension methodology rather than an institutional arrangement affecting the government structure. However, in cases where government has withdrawn from providing extension services, as in cases within the non-market reform figure on «subsidiarity», participatory extension is likely to become the «system» by default or result in a farmer-led system assisted by intervention by international organizations. But the following questions must be asked: What are the implications of these reforms for participation? Who should be involved in participatory initiatives? Who should pay for participatory reforms?

4.2 Market reforms

Market reforms result from the central government's aim of privatizing the management of agricultural and rural extension systems, whether by contracting the delivery of extension field services, obtaining cost recovery by charging fees for the services, or creating partnerships with farmers' associations. The least radical way of reforming a public sector extension system is revising it by down-sizing and minimum cost recovery for services. This **revisionist** strategy has taken various forms. For instance, the United States in the late 1980s shifted away from a discipline-oriented, management-by-objectives approach to an issues-oriented management approach to extension, meanwhile gradually introducing charges for previously free services such as soil sampling and attending workshops. Several other governments maintain agricultural extension units in their ministries of agriculture, e.g. Australia, Canada, Japan, Poland, Portugal, and Spain. These countries continue to provide public sector funding and delivery of extension services, either partially or entirely.

Reforms that advance **institutional pluralism** are being widely promoted, especially in the developing countries today. This strategy often involves contracting out the delivery of extension field services to non-governmental organizations, such as non-profit NGOs, or to for-profit companies including consultancy firms and farmers' cooperatives. Contracting-out is considered an opportunity for public sector reform and private sector development in the developing countries, including the transition economies of Europe and Central Asia (Keefer 1998). Kidd et al. (2000) cite a variety of experiences with privatization and the commercialization of agricultural extension delivery that involve public sector partnering with other entities, viz., farmers' associations in China contracting technical services from public officials (this fee-charging experience will be discussed below and also in Section 5 under 'cost-recovery schemes'), share-cropping for profit in Ecuador, voucher schemes in Costa Rica, sub-contracting and voucher schemes in Chile, privatized service centres in Ethiopia, contract farming in Kenya, and farmer service centres in Sri Lanka.

Institutional pluralism promoted by central government should not be confused with the fact that in most countries there exists an institutional «complex» of public, private, and semi-public service providers (i.e. the so-called «third sector,» or non-profit NGOs). In the case of institutionalized pluralism, the public sector funds the extension activities while the private sector delivers them. In cooperation with TCI and the World Bank, SDRE has been assisting Mozambique in planning to contract the delivery of extension services in pilot provinces by non-profit NGOs, while continuing with public sector delivery in the rest of the country. In Zimbabwe, where so many public and private service providers are active in extension, SDRE has recently conducted a study that could help in developing a coordination mechanism and define the role of government in a pluralistic situation.

In Western Europe, many agricultural advisory services have redesigned their fiscal arrangements, initiating **cost recovery** or fee-based services to farmers. Fiscal redesign through direct charging for extension services first became prevalent in the European OECD member countries, largely because of national deficits resulting in changes in government policy and the consequent re-organization of their Agricultural Advisory Services. Over half the OECD member countries currently receive at least 20% of their finances from direct charging, and two countries (Finland and Norway) receive more than 50% of their finances from users. With few exceptions, agricultural extension services tend to be sold to users at a nationally-determined price; however, in some cases highly individualized projects command higher prices, while projects for low-income users are offered at reduced prices (OECD 1992:17). Some countries offer discounts or subsidies or otherwise encourage emerging and low-income farmers to procure group-use services that are less expensive than one-on-one services. In Latin America, Mexico adopted a fee-based strategy in the late 1980s for services to large farmers in the northwest grain-producing states, although Mexico later opted to decentralize national extension services to the state level (OECD 1998).

An interesting experiment in «**fee-charging extension**» (Fei & Hiroyuki 2000) has been taking place over the past two decades in China. The Chinese central government appealed to local authorities to enhance extension budgets through fee-charging extension (FCE) services. The function of FCE is not to recover costs, as it is in such countries as The Netherlands or the United Kingdom, but to act as an incentive. This incentive mechanism seeks to encourage technicians to go out to fields, contact farmers frequently, and ensure that the technologies are adopted. Technology transfer is carried out on a contract basis and is disseminated in response to the farmers' demands.

Although not feasible in all instances, this system of direct contracting between the extension technician and the farmer distinctly differs from the schemes generally cited. Yet as Fei and Hiroyuki (2000) suggest, the FCE experience in China is an example of useful «best practice» for other developing countries since it has proven viable under small-scale farming conditions and in incomplete market situations. Farmers and extension technicians are closely associated in this scheme, however — with rights, responsibilities and economic interests linked by contract directly between the farmer and the technician. Such an arrangement necessarily demands high quality technical expertise and training on the part of the extension technician.

A note on training. Although this document is concerned with institutional reform, it must be remembered that other issues relating to pre-service education

and in-service training are highly relevant to the success of any agricultural and rural extension system. Administrative and technical training is crucial for the success of institutional reform. To become extension technicians, agents must acquire high quality technical expertise and training. To meet the challenge of reform measures, managerial staff must develop high quality administrative expertise relevant to arranging and monitoring contracts, as well as supervisory skills in human resource management and programme monitoring and evaluation. Extension workers need to become agronomic, livestock or fisheries technicians or, depending on the programme goals, to develop special skills in farm management, farmer organization, or other programmatic and organizational skills. Extensionists must be prepared to respond purposively to the requirements of institutional reform (Qamar 2001), and new knowledge and skills must be promoted as well as new attitudes towards change. Specifically, the premiss underlying the strategy for fee-charging is that farmers will have access to practical information provided by knowledgeable technicians.

One of the most radical recent extension reform strategies is **total privatization**, including commercialization. In the case of total privatization, both the funding and the delivery of extension services are shifted entirely, or largely, to the private sector, as in The Netherlands. The Netherlands decided to privatize its public extension agents, at first by transferring them with initial financial support to work with farmer associations, and more recently assigning responsibility for these services to a private company, DLV. Privatization relieves the government of a fiscal burden, often improving the delivery of services once the private sector has taken over the function, although this strategy may leave poor farmers and rural workers without any support. In the case of commercialization, authority is given to a government-commercialized public agency, as in New Zealand. New Zealand's Ministry of Agriculture and Fisheries was challenged to «go commercial» in 1986, and to operate under user-pay commercial criteria. This former public sector service now operates as a company, under the name 'Agriculture New Zealand'. A similar step was taken in England and Wales. The Agricultural Development Advisory Service (ADAS), formerly a Ministry of Agriculture, Fisheries and Food executive agency responsible for providing extension services, was privatized in 1997. This body, now known as ADAS Consulting Ltd, is one of many private agricultural consultancies that offers a range of advisory services to primary producers in agriculture and horticulture (OECD 1999).

Figure 3 is limited by the fact that in several cases, countries employ a «mix» of extension structures, as already mentioned. For instance, the Agricultural Advisory Service (AAS) in Norway can be divided into three categories, depending on the amount of government support. Some services are financed entirely by government, some are partially financed by government, and others receive no government funding at all. Germany, a federally constituted country with strong states (Länder) rights, is an example of a «mix» of multiple extension decentralization structures in its three different regions: north-western, eastern, and southern (Hoffmann, Lamers & Kidd 2000). A similar case prevails in Australia where each state maintains its own authority, and extension services differ, although the trend appears to be towards reducing official services (Cary 1998).

In short, the reforms cited here are not static but are themselves in a state of flux. Several countries, such as Chile, have revisited their extension system arrangements on several occasions and have modified them each time. Chile has moved

away from a voucher system to direct subsidization under contracts with farmers to hire private extension service providers (Berdegué & Marchant 2001). In most cases, extension reform would best be described as «work in progress».

4.3 Non-market reforms

While central government market reforms aim at privatizing — wholly or partially, directly or indirectly — the management of agricultural and rural extension systems, non-market reforms aim at relieving central government of the responsibility of funding and managing extension. The most common non-market reform strategies are decentralization to lower tiers of government, and transferring or delegating the responsibility for extension to non-governmental organizations, or removing government responsibility for extension entirely.

Decentralization is often narrowly defined to signify shifting authority for extension to lower tiers of government. Some (Rondinelli 1991) use the term, «devolution» for this type of political decision. Whatever the terminology, decentralization is a policy determination that differs from market reforms.

Decentralization reforms are observable in Colombia where extension is being transferred to the municipal level (Garfield, Guadagni & Moreau 1997), or in Mexico where authority for the service has been shifted to the states, as well as in other Latin American countries (Llambi & Lindemann 2001). Some countries are in the transition stage of moving towards a regionally decentralized extension system, as in Malawi. In collaboration with the TCI and the World Bank, SDRE has been assisting Uganda to plan shifting administrative and fiscal authority for extension to local government and farmers' groups (Uganda 1998b). Similarly, Yemen has been given assistance to implement its plans to give farmers wider extension responsibilities, as have Indonesia, Iran and the Philippines to help them establish and/or strengthen their devolved extension services.

Economists tend to concentrate on the intergovernmental transfer of powers and responsibilities. They argue that the decentralization of powers to local government is unlikely to be a panacea to the shortcomings of a weak central government (Smith 1997; Dauphin 2000). Crowder (1996) raises the question of the effect of decentralization on research-extension linkages: does it result in de-coupling research-extension linkages, or does it actually improve these linkages? On the other hand, in Indonesia, where both research and extension services have been decentralized, the creation of provincial Technology Assessment Institutes presents a new and promising paradigm of operational linkages among research, extension and farmers (Qamar 1998). Although important, these are considerations that fall outside the immediate purposes of this paper.

Governments also «decentralize» to other organizations and levels. At least three decentralization directions currently dominate the development of agricultural and rural extension. One is to decentralize the burden of extension costs by redesigning the fiscal system. Another is to decentralize central government responsibility for extension through structural reform. The third is to decentralize programme management through farmer participatory involvement in decision-making and, ultimately, helping farmers take responsibility for extension programmes. Governments may shift authority to farmers' associations, such as cooperatives or *chambres d'agriculture*, as is being done in Denmark, Finland and France, in Europe,

and Ecuador in Latin America. In some cases, governments may shift authority to NGOs or farmers' groups upon terminating government responsibility for public sector extension services. In Latin America where non-market reforms involve delegating authority to private NGOs, as in Bolivia, Ecuador and Peru, this type of reform has been referred to as «tertiarization» (Bastos 1997). In the present paper, this last form of «decentralization» is referred to as «subsidiarity».

Subsidiarity is a comparatively recent term which, according to the AKIS/RD *Vision and principles*, means that authority should go to the lowest level at which economies of scale and scope are not compromised and all costs and benefits are internalized. Giving local communities responsibility for programmes is an attractive option because it integrates local government and rural people into programme design and implementation. Some governments have shifted the institutional and technical responsibility for exchanging and transferring information to the farmers, who manage the agricultural extension programmes themselves. Such participatory involvement is thought to make services more responsive to local conditions, more accountable, more effective and more sustainable. This form of «subsidiarity» exists in Bolivia and Peru. As a rule, subsidiarity highlights government delegation of authority to non-governmental entities, and in some cases the total disengagement of government from agricultural and rural development interests, giving NGOs or farmers and farmers' organizations that responsibility. In several European countries, such as Denmark and Finland and partially also France and Germany, the farmers' associations carry out extension with partial government sponsorship.

This review of the institutional reforms of extension is not intended to cover all the reform strategies that exist, much less all the structural forms of extension. Some countries have undertaken reform through the '**deconcentration**' of authority to lower branches of central government. This effort may be a stepping-stone to later decentralization. At the moment, central authority structures may be deconcentrated to field levels in a number of ways: through financial grants, local coordination, district administration, provincial development planning, and regional coordination, as occurs in Belgium, England and Wales, Indonesia, and Ireland.

Another form of extension development is when **dual** authority structures are established, with power shared either (i) between the government and farmers' associations, as in Norway and Sweden, or (ii) between the government and a subnational governmental entity (e.g. a state or prefecture), as in Japan, South Korea, and Taiwan. In Figure 3, these dual forms of structured authority fall under the heading of pluralism (or power sharing), since they are a form of partnership.

Agricultural development including extension-related responsibilities has sometimes involved **delegation to an external (foreign) private company**, e.g. the French-run Textile Development Company (CFDT) operating in Africa, South Asia, and Eastern Europe.

In short, countries worldwide have adopted and continue to experiment with a variety of reform measures, to respond positively to the current paradigm shift towards market-oriented economies and democratic society. An examination of the various reform strategies undertaken worldwide provides a valuable «menu of options» for governments in a transitional reform stage or in the process of reconsidering the role of different sectors in agriculture.

4.4 A dynamic view of extension institutional reforms

Although Figure 3 helps to clarify the different types of agricultural and rural extension institutional reforms, it has several limitations. It is limited in its emphasis on market and non-market reforms, by failing to indicate the possibility of complementarity, such as possible linkages that might exist between a pluralistic reform established under a contractual scheme and the promotion of subsidiarity within that scheme. Another limitation is that a particular country may have a multiplicity of reform trends, as already indicated. To attempt to resolve this limitation, Figure 4 sets out the reforms as though they were simultaneously circular in their dynamism, and hence changeable, and part of a larger puzzle within which considerations such as cost-benefits, political reality, and social needs remain central.

Figure 4: A dynamic view of extension institutional reforms

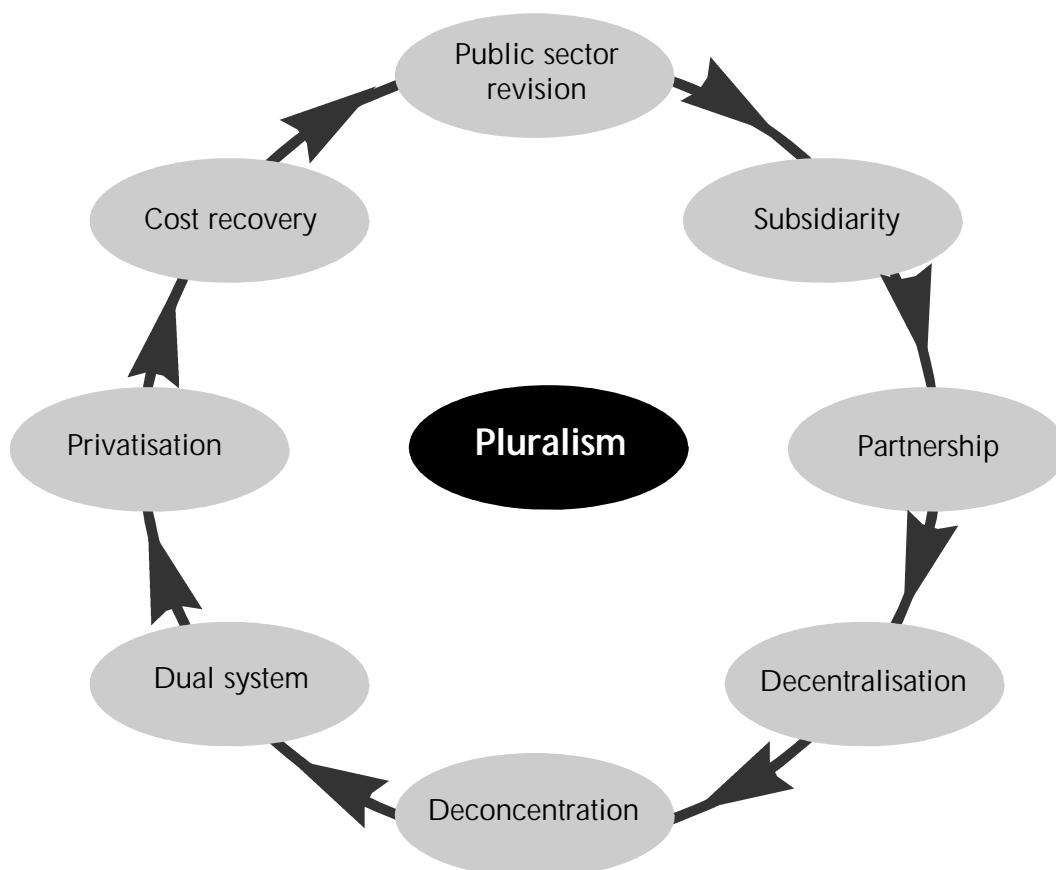


Figure 4 provides a more dynamic view of institutional extension reforms, and further illustrates that an extensive menu of options exists for governments to consider in any agricultural and rural extension reform. It also suggests that there is no single solution to the question of reform. Indeed, several areas of reform might be combined to formulate a country's policy, depending upon that country's situation and the way the government views its needs.

4.5 Vision and guiding principles for extension development

Over the last generation, varying perspectives of agricultural and rural extension have emerged.

During the 1980s, the most widely used schema for illustrating extension's relationships was a triangle with research at the pinnacle and extension and farmers at the bottom corners of the triangle (Merrill-Sands & Kaimowitz 1989). This technology triangle stressed the importance of research, and the linkages between research and extension and with farmers. Feedback arrows pointed from and to each of the three points of the triangle.

Agricultural extension, as illustrated earlier in Figure 2, is currently viewed as part of a larger knowledge triangle consisting of agricultural education, research and extension. Moreover, the term Agricultural Knowledge Information System (AKIS) is now taken to refer to rural communities as well as farmers, which means that in Figure 3 the central focus should read **rural communities**, and not farmers alone. This focus places a new emphasis on rural people as a whole, and not only on those engaged in agricultural production. However, the AKIS/RD strategic vision is not always consistent in its broader focus, and still refers to the groups to be reached as «farmers».

The AKIS/RD vision is underpinned by nine guiding principles. These include: economic efficiency; a careful match between the comparative advantages of organizations and the functions they perform; subsidiarity; clear spread of costs; careful assessment and optimal mixing of funding and delivery mechanisms; pluralistic and participatory approaches; effective linkages among farmers, educators, researchers, extensionists, and other AKIS/RD stakeholders; building human and social resources; and sound monitoring and evaluation.

The principles are ambitious, and differ in at least two respects. Several of them pertain to institutional arrangements that involve **policy reform strategies**. That is the case with pluralism, subsidiarity and cost recovery, which the AKIS document refers to as the «optimal mix of funding and delivery mechanisms». In short, these principles relate to issues of extension funding and delivery; they pertain to policy reform options.

The other principles are more closely associated with **programme management and development**. Such issues as the participation of stakeholders in decision-making, cost efficiency, human development and training, social resource enhancement, monitoring and evaluation: these are primarily programme management issues, and are more closely related to the programme dimensions enumerated by Axinn in his guide on approaches.

Participation, like other approaches to extension, has its advantages and disadvantages. It constitutes both a development philosophy and an instrument (Nagel 1992). As a philosophy, it describes the action by which all the participants are involved in attaining a common goal. As an instrument, it focuses on the involvement of stakeholders in decision-making processes, such as situational analysis, planning, implementation and evaluation. The process has the advantage of using

local expertise, capacity-building, cost-effectiveness, and greater familiarity with the local context (Zijp 1994).

Participation, then, is a process that may be introduced into an extension system. Or, as with the Farmer Field School (FFS) approach, it may define the very purpose of the extension activities. FFS seeks specifically to initiate rural people into taking personal responsibility for addressing the problems, interests and concerns that surround them. In this sense, FFS is related to an earlier teaching/learning process developed by the Brazilian educator, Paolo Freire.

As the AKIS/RD document notes, the next step in promoting extension reform is to apply the guiding principles. In addition to case studies under preparation in several countries for this exercise, the present paper is intended to serve as part of that next step, namely, to aid FAO staff to operationalize the AKIS/RD vision and to draw up guidelines relating to that vision and its principles. In due course, an assemblage of procedures and tools for implementing the proposed initiatives will need to be collected and analysed.

The next step, however, is not so simple as choosing between reform options. An understanding of each country's situation and needs is needed, and through analysis and dialogue to arrive at perhaps distinct initiatives that draw on, but do not necessarily copy or imitate, the reforms undertaken elsewhere.

The initiatives assembled and reviewed in the next section draw on the agricultural and rural extension institutional reforms that have been, and at the beginning of the 21st century are being, adopted in countries worldwide.

5. Reform initiatives

The environment of agricultural extension is changing (Rivera & Gustafson 1991, Neuchâtel Group 1999, Qamar 2000). A large number and variety of reforms have already been put in place worldwide. Change is also evidenced in the move to combine agricultural extension with rural extension (World Bank 1997; FAO/World Bank 2000). An expanded view of agricultural extension has occurred and currently includes the advancement of rural extension programmes and rural development.

When considering the reform strategies that are most amenable to FAO's above-mentioned goals to promote food security and alleviate poverty, several strategies and approaches appear particularly appropriate. FAO's main approaches certainly involve, and should involve, stakeholder participation, extension and farmer training programmes, and farmer group promotion. The menu of options for promoting institutional reform is even more varied. In view of the market and non-market options mentioned earlier, and applying the vision and principles forwarded by several international bodies, these reform strategies would include (1) promoting pluralism, with an emphasis on pluralistic partnerships, including partnerships with farmer organizations and private venture companies, (2) cost-recovery schemes, where applicable, based on contractual provisions under which the clientèle are protected from inappropriate or unproductive advice, (3) decentralization arrangements with lower tiers of government under which local authorities are given tax-raising powers or some form of fiscal federalism, and (4) subsidiarity to farmers and farmer organizations. This list of strategies deliberately omits those strategies which advocate total privatization under which responsibility for extension funding and delivery passes entirely to the private sector, because the obligation on government to make provision for small farmer development and welfare appears to be crucial for the implementation of food security and poverty alleviation programmes in low-income countries.

While decentralizing and privatizing elements are needed, the vision underlying the enactment of these and other purposive strategies must be viewed with an eye to the role of central government, and not only to dismantling or transferring its powers. A balance-of-powers vision involves a more equitable and broadly-based set of national development players, and is the premise on which contemporary policy-driven strategies need to be built.

Division of responsibility is needed and should constitute the long-term overall vision and purpose of reform (Rivera 2001). This vision would encompass distributing powers between the central authority and other constituent government units, and promoting a private sector that fosters the development and indepen-

dence of organized groups around their special economic and social interests. In short, this vision would entail fostering a balance of powers (1) among the various tiers of government (central, state, regional, provincial, governorate, district and municipal), (2) between the public and private sectors, and (3) between government and associations, including organized citizens. A balance of powers of this kind does not yet exist in most developing countries, and must be explicitly set out in the agenda of development goals.

5.1 From pluralism to partnership

The term «extension pluralism» is used in countries such as Uganda and Mozambique to signify government-led development under which private extension-providers are either funded to provide extension field services or are incorporated in some way into the public sector extension system. In some countries, such as Viet Nam and Zimbabwe, which also practise extension pluralism, NGOs and other non-public service-providers receive little government financing. The term, «complex of extension-providers», is used to refer to the fact that in many instances a range of agricultural and rural extension-providers operate in a country. It should be noted, however, that pluralism, like other subjects relating to agriculture and extension, is still the subject of debate.

Referring to Bolivia, Bebbington and Kopp (1998) say that «...the increasing tendency of government to engage in contractual arrangements with NGOs, under which the NGOs merely implemented government programmes, has often served to weaken the identity and legitimacy of NGOs, although it did provide them with much needed funding». Similarly, Anderson and Crowder (2000) argue that «contracting-out tends to be an administrative or technocratic approach where governments and/or donors promote contracting for a variety of fairly economic rationales. However, they also tend to try and keep methodological and conceptual control, which can limit learning and flexibility... While often advocating the existence of several partners, these approaches do little to encourage pluralistic partnerships...». These comments once again reiterate something that has already been stated elsewhere in this paper: no single reform measure can be considered a panacea, but all are «work in progress», dependent on the commitment, resources, capacity, attitudes and motivations of the stakeholders at various levels.

The agricultural extension complex in a country, or in a region, is certainly nothing new. What is new is when public sector funding establishes a pluralism of agricultural and rural extension-providers. The critical question that still remains to be answered, however, is whether public sector funding of private-providers and the apparent «pluralism» will actually result in viable and meaningful «pluralistic partnerships».

Although it is subject to criticism, government-led pluralism can be used by the developing countries to expand and improve the range and effectiveness of public sector extension. Depending on donor involvement and conditionalities, institutional pluralism (in addition to providing a more effective service) makes it more likely that the funded institutions will promote participatory approaches in extension.

5.2 Partnerships with farmers and the private sector

In a partnership, equal authority is vested in the parties to it. In some countries (South Korea, Taiwan), farmers' associations are equal partners with decentralized government authorities. In other countries (e.g. Israel) farmers may «contract-in» certain services to establish an equal partnership, since decisions regarding the provision of field services are made by the farmers' associations. More recently, other forms of public sector partnership involving government funding have emerged (e.g. Chile, Hungary, and Venezuela). Where government funds private field services providers, however, there remains the same question that arises in relation to pluralism regarding the equality of the partnership when government pays.

In a true partnership, the field service is established, and with two partners it functions on the basis of a 50:50 voluntary association with a financial budgetary partnership between the government (usually regional or provincial) bodies and the local agricultural authorities. The regional councils and the agricultural authorities jointly run and manage the service on a regional or local geographic basis. Underlying such partnerships are usually the establishment and provision of field services including budget sharing, the joint management of field services, and joint central management. In a partnership, the field service provides extension advice and services, engages in technology development, and acts as the authoritative professional body in the technical fields and services defined in the partnership agreement.

While there may be some dispute regarding the authenticity of the newer, contracted, institutional partnerships, as partnerships, they nevertheless appear to be needed to meet the growing demand for food and to sustain the natural resource base at a time of declining public investment in research and extension (Swanson 1998). Swanson argues that new institutional partnerships allow for cooperation with, rather than competition against, private agricultural development firms. He notes that private sector firms have the resources and comparative advantage to produce and distribute different types of proprietary technologies, such as improved varieties/hybrids and agro-chemicals. In the process, both the technology development and transfer costs of these proprietary technologies are passed on to the farmers, and ultimately to consumers. Swanson claims that associating the private sector component with a national technology system makes it more sustainable.

5.3 Cost recovery schemes

Various cost recovery strategies exist. There are systems in which government and private organizations charge for extension information, and arrangements in which extension technicians work with farmers on a fee-based contract. Repartition of costs is seen as an important development by committing the stakeholders to share the burden of funding extension, which encourages them to acknowledge and appreciate the value of information.

Several public and private sector extension cost recovery schemes exist. Hanson and Just (2001) cite such public schemes as: (a) fee-for-service extension provided by a public extension system, (b) partially public-funded private extension

schemes, under which extension services are provided by private firms under contract or their fees are paid from public extension budgets with a contribution paid by the user of the services, and (c) policy-supported private extension schemes, under which fee-for-service extension provided by private firms is made viable by government requirements or subsidies are provided for or taxes levied on specific production practices. Private extension schemes involve fee-for-service extension provided by private firms with no public support, and are clearly private. Considering both the market failures of private extension systems in which privatization reduces social welfare provision, and the public extension failures in which privatization increases social welfare provision, Hanson and Just (2001) argue that «a universal movement towards paid extension is not in the public interest». They conclude that «optimality calls for a mix of public, private, and paid extension including policy support of private extension».

Recovering the cost of advisory services by charging the users for them is sometimes seen as having several objectives: to ease the burden on public funds, to stimulate private sector participation in service provision, and to make the services accountable to farmers as paying clients (Kidd *et al.* 2000). According to this view, cost recovery partly depends on the viability of the agricultural markets and the ability of the farmers or their organizations to pay for services.

In the formulation of the NAADS (National Agricultural Advisory Service) project in Uganda, Crowder (2000) notes: «The key factors in applying user charges to services are the abilities and willingness of farmers to pay. Commercial farmers producing high value crop or livestock products for secured markets presumably are more willing to pay for advice than farmers whose profit margins are small and who operate in uncertain markets». Referring to the Uganda National Farmers Union, he notes that «While farmers may say that they are willing to pay for advisory services, the determination of fee structures needs to take into account not only the stated willingness of farmers to pay but their actual ability to do so». In the case of the Ugandan farmers, their ability to even partially pay for advisory services is limited by their lack of surplus financial resources.

Charging for extension, however, need not be based on financial resources alone, but could also be based on payment in kind, such as (1) a portion of the crop produced, (2) services to the extension service, or (3) selling farm-related materials. For this to be done, the extension agent's advice must be appropriate. One example of this kind of fee-charging for extension exists in China (Fei & Hiroyuki 2000) where contractual arrangements are established between the farmer and the extension technician, and payment depends on production and the sale of farm-related produce used as payment for the extension services received. China's experiment is particularly interesting because the function of the fee-charging scheme is not so much to recover the costs but rather as an incentive mechanism. Farmers and extension technicians are closely associated in this scheme, with rights, responsibilities and economic interests directly linked by contract between the farmer and the technician. As mentioned earlier, such an arrangement requires high quality technical expertise and training on the part of the extension technician. Although it is not always feasible, this system of direct contracting between the extension technician and the farmer differs from the schemes generally cited but, as Fei and Hiroyuki suggest, it does offer a valuable cost recovery alternative that the developing countries could envisage.

5.4 Decentralization to lower tiers of government

Decentralization is most often thought of as the shifting (or devolution) of authority for extension to lower tiers of government. In general, decentralization involves the transfer of funding and management authority to sub-national government levels. Policy-makers and practitioners challenged to develop strategies for the reform of extension, particularly decentralization to lower tiers of government, must weigh up and decide what is important, and why and how the various issues must be treated (Deller 1998).

Although the nature of the reform will vary between countries, Dillinger (1995) points to three main ingredients for a well-structured decentralized government. First, functional responsibilities must be clearly assigned among government levels, with hard budget constraints on central government participation in nominally local functions. Second, revenue sources must match functional responsibilities with only minimum scope for bargaining and negotiation, and capital financing systems must reward creditworthiness rather than political acumen. Finally, a system of accountability balancing central regulation against local political participation must be instituted. In short, Dillinger notes that a system based on rules works better than a system based on negotiations, and that political autonomy has to be matched by financial autonomy.

To date, the centralist tradition in the developing countries has inhibited self-reliance and the development of civil institutions at the community level, both of which are critical elements for the smooth functioning of decentralized local administrations. For policymakers and practitioners in the field the present emphasis requires action to be taken to discover the most appropriate way to move towards the reform option of extension decentralization.

One approach to developing national recommendations for extension decentralization might be to convene a national workshop. The purpose of such a workshop would be to review institutional reform strategies undertaken worldwide and to bring together current and potential stakeholders to examine various decentralization arrangements, including the issues and successes in other countries. The national workshop could serve to clarify the direction in which these stakeholders think the country should move in pursuing decentralization reform of agricultural and rural extension. The diverse structural and financial arrangements adopted in the last two decades by governments worldwide to improve agricultural extension services would be analysed and compared, with a view to providing a menu of alternative options when confronting the challenge of decentralizing public sector agricultural extension.

If decentralization is to work, however, local authorities must be partially financially independent of central government. Shah (1994) emphasizes the importance of «fiscal federalism» under which the subgovernment level is provided with block grants and/or authorized to raise taxes to finance its operations, including such services as agricultural and rural extension.

5.5 Subsidiarity (decentralization) to the grassroots level

Subsidiarity refers to the operational authority and responsibilities that are devolved to the lowest possible level of authority, consistent with organizational competencies and the efficient use of funds. Resources, including funds, would be assigned to the grassroots level based on specific responsibilities. The extent to which governments are interested in and willing to shift the authority for providing extension services to farmers' associations and viable rural community groups, may be worth exploring. While subsidiarity suggests that authority should go to the lowest level of society, the move should be practical and consistent with the overall public good (Porter 2001).

Transferring or delegating extension responsibilities to entities at the grassroots level sometimes implies a choice between shifting authority to local government and/or local community groups. It is important to ensure that economies of scale and scope are not compromised and that all costs and benefits are internalized. Making local communities responsible for programmes, as Colombia has done, is also an attractive option because it incorporates rural people into programme design and implementation.

Governments are beginning to adopt institutional and technical measures to give responsibility to the farmers for the management of agricultural extension programmes. Participatory involvement is seen as making services more responsive to local conditions, more accountable, more effective and more sustainable. This form of subsidiarity is occurring in places as distant from one another as Bolivia and Uganda.

The decision by government to move towards grassroots command of extension may take different directions. In Uganda, for instance, government is moving towards shifting fiscal responsibility to districts and sub-counties while transferring the rights to farmer associations to contract-out to private entities for extension services (Uganda 1998a). The expectation is that the existing public sector extension agents will set up extension consultancies and become commercial providers, along with other commercial non-governmental entities.

CONCLUDING REMARKS

This paper covers extension institutional reform initiatives involving both market- and non-market reforms, as well as initiatives for non-farm rural development, with an emphasis at all times on stakeholder, and especially end-user, participation in the approaches employed in these reforms. The initiatives draw on recent agricultural extension reform measures taken in various high-income, middle-income and low-income countries. The focus, however, is on reform measures that promote food security and poverty alleviation among small holders in low-income countries. The initiatives are largely envisaged as an application of the principles enumerated in the FAO/World Bank document on *Strategic Vision and Guiding Principles* (2000) for promoting Agricultural Knowledge and Information Systems for Rural Development, and other frameworks (Neuchatel 1999) that underline the changing extension environment.

The reform initiatives call for:

- (a) pluralism of extension providers, involving coordinated partnerships with non-profit non-governmental organizations,
- (b) partnerships involving farmers and farmers' organizations, and other private sector extension-providers,
- (c) cost recovery options, including those negotiated directly between farmers and extension technicians (which requires human resource development coupled with technical assistance),
- (d) decentralization to lower tiers of government ,
- (e) subsidiarity at the grassroots level.

An additional initiative for non-farm rural development is also included, emphasizing micro-enterprise development.

Global developments require a new vision and the promotion of improved best practices if agricultural and rural extension systems are to be revitalized and made more effective in meeting the diverse needs of the developing countries. The reforms mentioned here are based on an increasingly extensive menu of options that challenge each country and offer FAO important opportunities to promote institutional policy. The immediate challenge is how to help each country to identify the right mix of extension institutional reforms and approaches to be able to operate more effectively in a global agricultural system.

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