

DEVELOPING INNOVATIVE, PLURALISTIC EXTENSION SYSTEMS
IN A CHANGING GLOBAL ECONOMY

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ABSTRACT

During the second half of the 20th century, agricultural extension in most developing countries focused on technology transfer (e.g., the training and visits approach introduced in 75 countries) to achieve national food security. During the Green Revolution, these top-down extension systems had a significant impact on agricultural productivity, particularly in many Asian countries (e.g., 62.9% annual rate of return vs. 48% for research). However, given expanding economic growth in the 21st century, there is increasing demand, both domestically and globally, for high-value crop, livestock, fish and other products (e.g., honey, mushrooms, etc.). Given these new market opportunities, small-scale farmers must learn which high-value products they can most

successfully produce and market. These decisions largely depend on farm size, agro-ecological conditions and access to specific markets. To provide farmers with the necessary advisory services, extension systems must be transformed and integrated to become more farmer-led and market-driven. This paper outlines the key functions of agricultural extension systems and describes the role of private-sector firms, non-governmental organisations (NGOs) and public extension services in moving towards more innovative extension systems. The primary goal is to enable smallholder farmers to increase their farm income, by producing and marketing new high-value products, while maintaining household food security. To bring about this transformation, there should be a clearly understood division of

labour and collaboration between the private sector, NGOs, public extension services and the donor community.

KEY WORDS: *COLLABORATION, DECENTRALISED, FUNCTIONS, FARMER-LED, MARKET-DRIVEN, PUBLIC EXTENSION*

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INTRODUCTION AND OBJECTIVES

Agricultural extension systems during the second half of the 20th century primarily focused on technology transfer to achieve national food security. Given the Green Revolution that got underway during the early 1960s, enhanced by the introduction of the training and visit (T&V) Extension System in the mid-1970s, there have been significant agricultural productivity gains for staple food crops, especially in many Asian countries where irrigation systems were available. However, in other countries, including most sub-Saharan African (SSA) countries where irrigation was less available, productivity increases of staple food crops (e.g. maize, wheat, rice, etc.) have not been as significant. In addition, there are other factors that have limited productivity increases for staple food crops, including the increased cost of fertiliser and other essential inputs, as well as access to markets, due to the poor roads and other transportation resource issues.

For the past 50 years, agricultural research organisations have been strengthened at national and international level. The Consultative Group for International Agricultural Research (CGIAR) has been proactive in seeking donor funding for the CGIAR centres and in linking with national agricultural research centres (NARCs). However, both government and donor resources for agricultural research and extension systems began to decline by the early 1990s, because of the

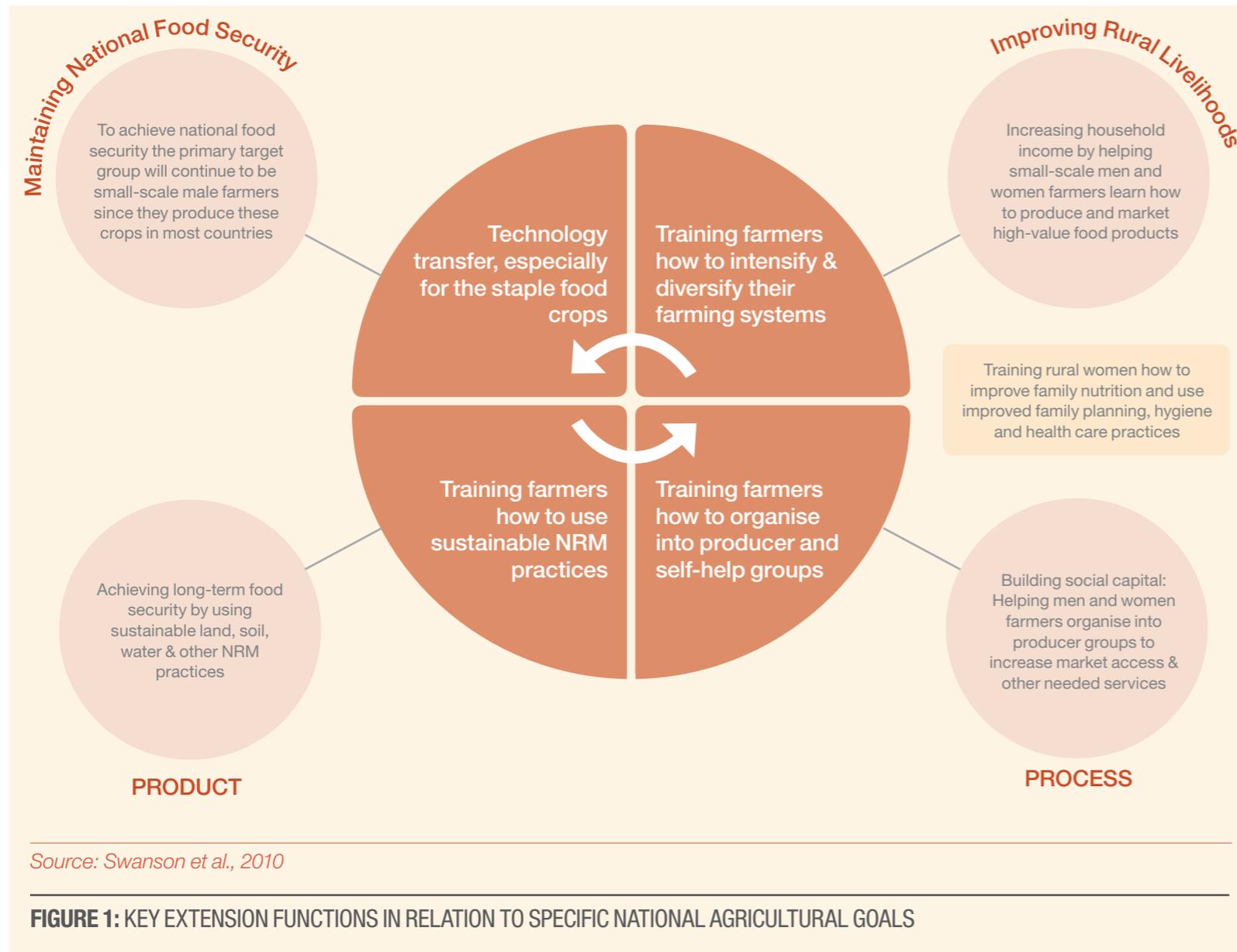
perceived success of the Green Revolution during the 1970s to 1980s and the recognised problems of the T&V extension services. More recently both governments and donors began to realise that continuous investment in research was essential, but donors are still unsure about the best way of strengthening agricultural extension systems. As a result, different donors are pursuing different approaches to providing advisory services to farm households. This paper outlines these key extension functions; steps in creating more innovative extension systems; and the relative advantage of private sector firms, NGOs and public extension in providing these different services. Some donors have differing views about how these pluralistic extension systems should be strengthened.

There are many different viewpoints about extension and advisory systems, depending on: the types of organisation (e.g., public, private and non-governmental organisations/NGOs) involved and the type of information (e.g., technology transfer, diversifying farming systems, building social capital, natural resource management etc.) provided. The government, donor or sponsor who is financing these advisory service activities or whether they are self-financed is also important. Figure 1 illustrates these primary extension/advisory service functions and their relationship to major agricultural development goals, including national food security and increasing rural

household income (Swanson, 2009).

To achieve and maintain national food security, technology transfer is essential for the staple food crops and continues to be a key long-term extension function and priority. Both public extension and/or NGOs can play a critical role in delivering technical advisory services to farmers, either directly and/or through farmer-to-farmer exchange before input suppliers have been established. However, as input supply firms become established, they assume increasing responsibility to provide technical advisory services to farmers, especially for major staple food crops. However, public extension services must still provide farmers with 'objective' information about specific technical recommendations, especially about the specific inputs being promoted and sold by individual input supply firms.

As countries achieve national food security, market prices for staple food crops will generally decline, reflecting a progressive increase in the supply and a gradual decline in consumer demand for these crops. As staple food prices decline, then small-scale farm households are faced with a dilemma. If their land size is too small to expand production and with a declining source of income, it will become increasingly difficult for them to purchase needed inputs and to maintain their productivity levels. In order to increase their farm household income, they need to pursue a different farm management strategy, by focusing on more



incomes and to help improve rural livelihoods. To do so, however, limited resource farmers will need to intensify or diversify their farming systems. However, the scarce availability of land, labour and capital, as well as current agro-ecological conditions will affect the specific options that these different farm households can pursue, if they are to successfully increase their household income.

Another critical factor is their 'access to markets', including transportation, all-weather roads and the distance to local, regional, national and global markets. In short, all of these factors will determine which crop, livestock, fisheries and/or other products can be successfully grown and marketed from each community, sub-district, district and province within a country, including access to available technologies for these different enterprises. To achieve this goal, public extension systems and NGOs must begin shifting their focus, resources and programmes toward a more market-driven extension strategy.

A third objective, which is directly related to the diversification of farming systems, is the need to get different categories of farmers organised into producer groups for different high-value crop, livestock and other products. This will enable them to begin building value chains for specific products that can be sold to available markets. NGOs can play an important role in helping different groups of farmers get organised and then to teach them the needed leadership, organisational and marketing

high-value crop, livestock and other products (HVC/Ps), and/or by considering other options, including off-farm employment.

At this point in the agricultural development process, there must be a 'paradigm shift' whereby

public extension systems (and NGOs) begin shifting their focus and resources to the other major agricultural development goal, which is to improve rural livelihoods (Swanson, 2009). The key objective of this strategy is to increase farm



skills. Once these farmer groups are organised, then they can become more effective in articulating their specific technical and marketing needs to public extension, as well as to other agricultural institutions, including research. To do so, however, farmer advisory committees (FACs) for public extension systems must be established, so that these systems become more farmer-driven. In addition, once women farmers begin working together in groups, they start sharing other information, such as how to improve family nutrition, hygiene and health care that can further improve rural livelihoods, especially for their children. Also, if women farmers get organised into groups and start producing and marketing these products, they will have more funds available for schooling and health care.

Organising farmers into groups is affected by numerous factors, including culture and gender. In China, farmers always had a tradition of working together, so organising commodity-based producer groups was not difficult. For example, under the World Bank financed Agricultural Support Services Project (ASSP) in China that started in 1993, over 7,000 producer groups were organised in 60 districts. Currently, there are over 140,000 producer groups that have been established nationwide and, as noted earlier, this has resulted in the rapid and continuing increase in the production and marketing of horticultural, livestock and fish products. In India, where public

extension had never organised producer groups before, the World Bank financed National Agricultural Technology Project (NATP) resulted in the district and block extension system organising over 10,800 Producer Groups (PGs) in four years (Singh *et al.*, 2006). A similar Diversified Agricultural Support Project (DASP) implemented in Uttar Pradesh resulted in over 18,000 PGs being organised by NGOs and extension workers around different HVC/Ps (World Bank, 2004).

Finally, for a country to maintain its national food security in the long-term, it is critical that farmers, individually and collectively, know how to maintain their natural resources, including stopping or preventing land degradation, maintaining soil fertility and making more efficient use of increasingly scarce water resources. These are 'public good' issues, which private sector firms generally will not address. Therefore, public extension must allocate more time, attention and resources to these growing natural resource management (NRM) problems that are very important in most developing countries. Another serious problem is that most sustainable NRM practices cost farmers both money and labour, but there are seldom any immediate financial benefits from these additional costs. It is difficult to convince poor farmers to invest scarce resources and continue using more sustainable NRM practices unless they can shift their farming systems to the production of more high-value

crops and other products that will increase their farm income.

RESULTS AND DISCUSSION

Paradigm shift to more innovative extension systems

Until the recent economic crisis, most developing countries, especially those in Asia, were achieving significant economic growth. For example, most Asian countries averaged about 8% economic growth over the past 5+ years, while many sub-Saharan African counties achieved 5% or an even higher GDP growth (e.g. Ethiopia has been achieving an 8% annual GDP growth). When per capita income rises, food consumption patterns begin to change. For example, urban consumers start eating more vegetables, fruit, meat, milk, eggs and fish, while their consumption of staple food crops begins to gradually decline. Since most of these high-value products are more labour-intensive, they can represent a comparative advantage for many small-scale, limited resource farm households, either directly or through off-farm jobs.

There are an increasing number of publications on agricultural innovation systems (AIS), including extension's role within this new conceptual framework (World Bank, 2007; Rajalahti *et al.*, 2008). The specific steps to be followed in operationalising a more innovative extension system would be more useful information. While research still plays an important role in this overall



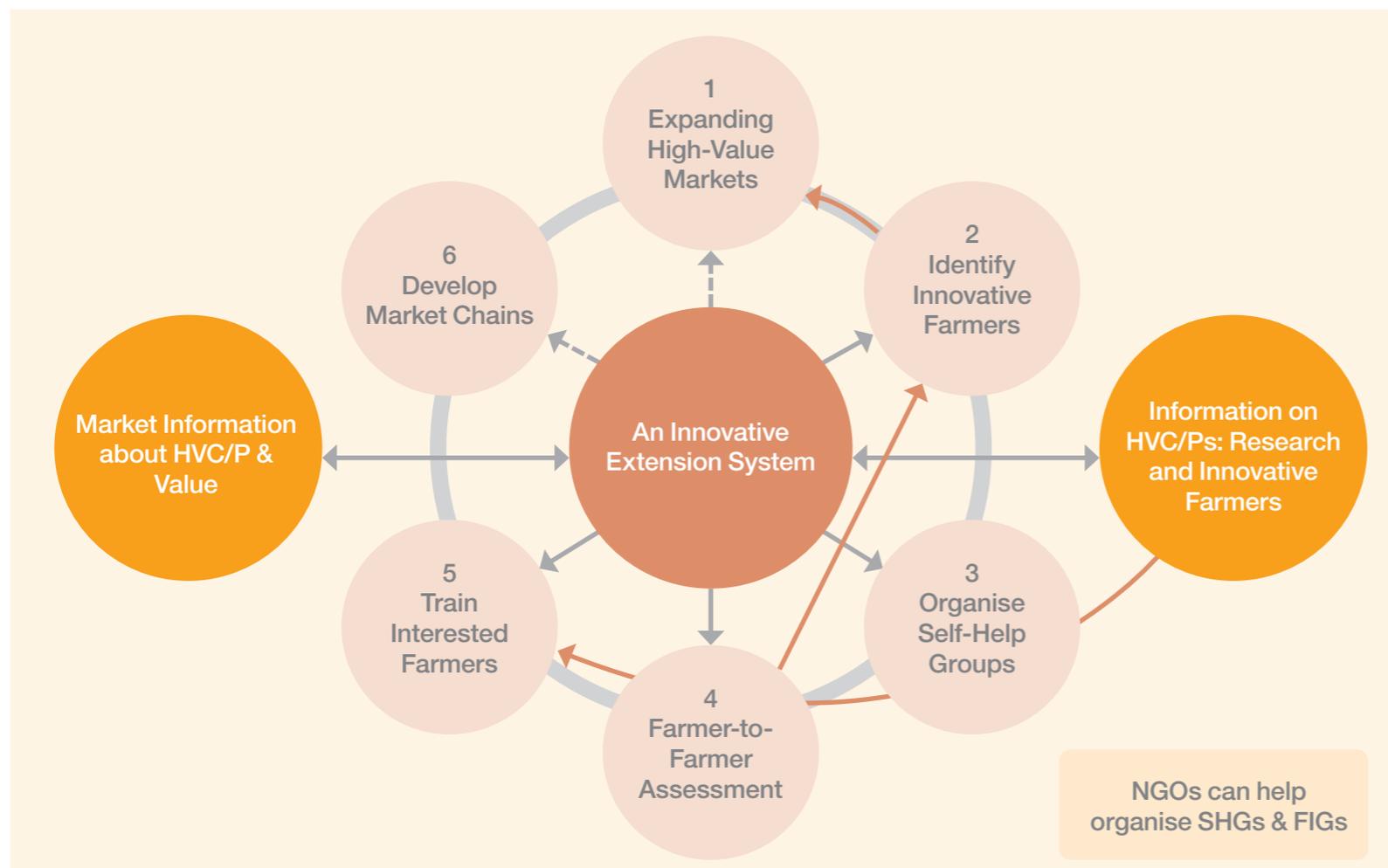
process, key players in most countries are the better educated, innovative farmers who can play an important ‘tactical’ role during this period of changing consumption patterns. Most innovative farmers have better access to information about potential markets and information about producing

and marketing specific high-value crops, livestock or other products. Therefore, the source of these new innovations for HVC/P is generally not research, but innovative farmers.

In India, the approach used to identify innovative farmers who were successfully

producing different HVC/Ps was to conduct participatory rural appraisals (PRA). Then other small-scale farmers could begin learning about these potential new opportunities, so they could learn how to produce and market specific HVC/Ps that would help increase their farm household income. Figure 2 outlines the primary steps in this process of identifying innovative farmers and then introducing and training small-farm households about these potential new market-driven opportunities (Swanson, 2009).

The local market demand for most HVC/Ps will be somewhat limited at first so extension must make farmers aware of these potential risks and how best to deal with them. Different farm households, based on their different land, labour and water resources, should diversify into the most suitable high-value products, as well as lengthen the production period to avoid saturating the market at peak seasons and driving down prices. In addition, as small-scale men and women farmers get organised into producer groups and then into larger producer associations, they can begin supplying larger urban (or even global) markets with specific products (Mishra and Swanson, 2009). All of these activities will be sensitive to both economic and market changes, so farmers will need immediate access to current market information and may need to diversify into more than one HVC/Ps, to reduce their risk if the average price for a specific product begins to fall.



Source: Swanson et al., 2010

FIGURE 2: AN INNOVATIVE EXTENSION STRATEGY TO HELP LIMITED RESOURCE MEN AND WOMEN FARMERS TO DIVERSIFY THEIR FARMING SYSTEMS AND INCREASE THEIR FARM INCOME



Another problem in implementing a more market-driven extension system is that most public extension workers have been trained in technical fields (agronomy, plant pathology, livestock production, veterinary medicine, etc.), rather than in agricultural marketing. Therefore, these new skills and knowledge will be unfamiliar territory for most extension leaders, subject matter specialists and front-line extension workers. In most cases, the field staff will not have the skills and knowledge needed to accurately assess potential new market opportunities. Ideally, there may be a unit within the Ministry of Agriculture or at an agricultural university that could provide this type of market information and begin training the extension staff in how to assess market opportunities and risks.

Another key element in this transformation will be to develop a market information system (MIS) that can supply up-to-date market information about promising high-value crop, livestock, fish and other products, to the extension field staff and interested farmers. Without this market information, farmers and producer groups will not be able to successfully negotiate with traders and/or link more directly to wholesale markets, including value-added processors. Where and how an effective MIS can be developed will differ from country to country, depending on the information and communication technology (ICT) infrastructure. However, developing an efficient, up-to-date and easily accessible MIS will be

essential if farmers and producer groups are to successfully produce and market popular HVC/Ps. In addition, collaboration with the private sector will be essential, especially when working with urban wholesale markets, value-added processors and/or exporters of HVC/Ps, which can be successfully produced and marketed from specific agro-ecological zones of the country. In India e-Choupal (<http://www.echoupal.com/>) is an effective MIS and e-Soko (<http://www.esoko.com/about/>) is an MIS in more than 12 African countries.

Another issue to consider is whether farmers in different agro-ecological zones of a district, province or country have a comparative advantage in supplying specific markets with different high-value products. The transportation infrastructure and agronomic conditions within each area are factors that will help farmers make these decisions. First, proximity to road, rail or market access can directly affect the competitive advantage of farmers in different areas of a district, province or country. For example, Morocco has a competitive advantage over Egypt in supplying European Union (EU) countries with fresh horticultural crops during the winter, due to a combination of their cold chain capacity and transportation infrastructure. Since Egypt has very limited cold chain capacity, they must air freight most of their fresh horticultural products directly to Europe, rather than shipping by refrigerated trucks, as is done in Morocco. Once Egypt develops its cold chain infrastructure,

then it can become more competitive in supplying closer European markets via sea freight, using reefer containers.

Agro-ecological conditions (soil type, rainfall patterns, temperature, time of year etc.) directly affect the competitive advantage of producers in different parts of a country or between countries. Once a producer group/association 'captures' a particular domestic market with consistently high-quality products, it becomes increasingly difficult for other producer groups to enter and compete for these specific high-value markets, unless the market is rapidly expanding (e.g., average horticulture production in China has increased at 26%/year since 1979 and livestock production has increased at about 20%/year during this same period). Therefore, extension can and must play a strategic role in helping producer groups determine where they can be competitive and in training farmers to produce to specific market requirements (Swanson *et al.*, 2010).

CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

National pluralistic extension systems in developing countries are at an important crossroads. Continuing to focus on the 20th century technology transfer strategy for staple food crops, with the goal of achieving national food security, can lead to declining farm incomes among small-scale, limited resource farm households. In



addition, this may well lead to increased hunger among the rural poor, forced rural–urban migration, and further environmental degradation. In examining trends in Asian countries, such as China and India, it is clear that public extension systems can play a strategic role in developing a more market-driven extension strategy that can have a long-term impact on the incomes and livelihoods of limited resource farm households. In the process, these public extension systems can also begin to make a sustainable contribution to natural resource management. However, to make these changes will require sustained leadership and resources to implement this new innovative extension strategy in the 21st century (Swanson *et al.*, 2010).

Important issues concerning the development of pluralistic extension systems

As countries develop, the private sector plays an increasingly important role in *technology transfer*, especially for the major staple and cash crops being produced. This trend is true in most countries, including North America and Europe, where the private sector has largely taken over the provision of advisory services for large commercial farmers. Farmer organisations and the public sector in these more developed countries will still provide some important advisory services, especially for those services not addressed by the private sector, such as natural resource management (NRM) issues. However, what has

become obvious over the past 20+ years is that both international and national non-governmental organisations (NGOs) are now playing an increasingly important role in the provision of direct advisory services to farmers in most developing countries. A key issue, however, is that most of these NGOs (and some international private firms) are operating solely on donor funding and so their primary focus is to achieve each donor’s specific priorities and expected outputs. There are a few exceptions, such as BRAC², which started in Bangladesh in 1972 and is now starting to provide agricultural and health services to rural women in several sub-Saharan African (SSA) countries.

In assessing selected international and national NGOs in different SSA countries, most are focused on specific donor projects, such as those being administered by the U.S. Agency for International Development (USAID), which are routinely announced for proposal submission. Most of these donor-financed projects (except World Bank projects) are now implemented by these international and entrepreneurial NGOs that have the capacity to write good proposals, win these projects and deliver the expected services. In short, these NGOs are very competent and successful in implementing these donor-funded extension projects, but are doing nothing to strengthen public extension on a long-term basis. In most cases, international NGOs win these projects and then contract with local NGOs to

implement them, with the international NGO largely playing an administrative role.

Another important issue is that local NGOs tend to recruit the most competent agents away from the public agricultural extension system by offering them 50–100% higher salaries, and providing them with the necessary transport and programme resources needed to provide effective advisory services to the target farmers being served. In many cases, unless this is clearly outlined in the project proposal, these projects focus on the more progressive farmers that they know can successfully adopt these improved technical and management practices and deliver the expected outputs from each project. In addition, many of these projects only serve a relatively small proportion of farmers within the specified target area.

Most of these donor-funded projects are very successful in achieving their intended outputs but when these projects end, most of these advisory services end immediately as the ‘project-driven’

² BRAC originated in Bangladesh, where it still has 250 agricultural specialists and 8,903 agriculture extension workers in the 64 districts of Bangladesh, where they provide useful advisory services to small-scale farmers. BRAC primarily uses micro-credit to finance the agricultural and health services provided to the rural poor.



extension workers move onto the next project. In the process, however, these well-funded donor projects progressively downgrade the public extension system in most countries. Therefore, the provision of these project-driven advisory services, especially for the small-scale men and women farmers, is not sustainable on a long-term basis. Therefore, it is strongly recommended that the donor community work together in investing in the 'pluralistic extension system' in each country, where the public, private and NGO service providers start working together to achieve long-term sustainability of these advisory services for the benefit of small-scale men and women farmers (Swanson *et al.*, 2010).

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