

The Private Sector and Smallholder Agriculture: Best Practices with Relevance to Mali, Zambia, India and Sri Lanka

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Background

This paper's purpose is to assist WorldAgInfo Design Team members with a better understanding of how agricultural market practices and systems work most effectively for the poor, especially smallholders, with relevance or reference to the above developing countries. A larger context for this study is that after nearly two decades of neglect, agriculture is back on the policy agenda, for donors and poor countries alike (Timmer 2005). The most important reason for this development, according to Timmer, is a growing understanding that economic growth is the main vehicle for reducing poverty, and that growth in the agricultural sector connects the poor to growth, including smallholders, and plays an important role in overall economic development. The most severe and intractable poverty in the world is in Africa south of the Sahara, where 70% of all Africans, and nearly 90% of their poor, work primarily in agriculture. (World Bank 2000)

The role and best practices of the private sector is the focus of this study because increasing volumes of market transactions are a key feature of richer economies. Market transactions serve as an important mechanism for efficient, coordinated economic exchange. With regard to the agricultural sector and the smallholder, however, in the aforementioned and other poor countries, poverty reduction challenges remain on the agenda for donors, states, and are of increasing interest for as well for private enterprise. These challenges have a lot to do with smallholder access to markets and market mechanisms that produce sustainable, poverty reducing, results. (Dorward and Kydd 2005). Indeed, for most observers, tackling poverty means boosting smallholder agriculture as a way of driving broad-based economic growth and employment across a range of agricultural and non-agricultural activities. (Peacock, et. al., 2004).

In strategic terms, smallholder farming is generally viewed as indispensable to development as a whole, and agricultural growth in poor rural areas can drive poverty reduction through three broad mechanisms (Dorward and Kydd, 2005): the direct impacts of increased agricultural productivity and incomes on the rural poor; benefits of cheaper food for both the urban and rural poor; and agriculture's contribution to economic growth and the generation of additional opportunities in the non-farm rural sector. (1) Over time, these three factors lead to structural economic change, characterized by the increased importance of the non-farm economy, and the decreasing relative importance of the agricultural sector. In this scenario, small-farm agriculture is presented as a growth-equity 'win-win.' (Dorward and Kydd 2005)

This paper will focus on private sector best practices in developing agricultural systems, including individual farmers; the role of contracts; banks; community-based credit and savings; agribusinesses; agricultural biotechnology; producer cooperatives; rural non-agricultural employment; farmer organizations for market access; market literacy; supermarkets; and non-governmental organizations (NGOs).

These players partially determine, together, crop mixes, technologies adopted, and production and marketing outcomes. Dorward and Kydd (2005) note that challenges in developing economies center on the demand for supply chains, weak institutions and thin markets, factors that can put the brakes on smallholder and agribusiness investments. (1) Given these circumstances, the authors suggest that institutional mechanisms need to promote *coordinated exchange* along supply chains, and the access of the poor to such exchange is critical to pro-poor growth in rural areas.

It is important to note that liberalization's shortcomings in recent years have not resulted in abandoning strategies associated with the vitality of the market. Rather these shortcomings have resulted in what could be called a third way between state hierarchies and liberalization, one that stresses means of improving implementation, meaning more complete withdrawal of the state from markets, along with greater support for institutions and services necessary for markets to work. (Dorward and Kydd 2005:2) Paradoxically, this has demanded a greater role for the state and civil society to strengthen property rights, regulatory systems, access to information and communications to open the way for the state to withdraw from other activities. At stake is a search for new coordinated exchange mechanisms that, according to Dorward and Kydd's arguments, call for (a) explicit external support for the development of hierarchies which can provide or support coordinated exchange opportunities necessary for pro-poor agricultural growth, and (b) institutions, technologies and prices which will make private investment attractive.

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Private Sector Best Practices

Smallholders

Many of the rural poor worldwide are smallholder farmers, and in most of South and South East Asia, and in much of sub-Saharan Africa, agriculture is dominated by smallholders. (Birthal, et al., 2005, Kydd, 2002) Smallholders derive their livelihoods by cultivating small pieces of land, and supplementing their income with dairy, poultry or fish farming. While smallholder agriculture accounts for a large proportion of agricultural production, it is not only a source of economic activity, production and income, but also constitutes an important part of rural culture and social organization.

But why do small holders remain poor? One common answer is that despite being relatively efficient users of resources, they remain poor because most poor countries provide them with only limited technical and economic opportunities to which they can respond. High productivity in contemporary agriculture consists of particular material inputs and knowledge and skills to use such inputs successfully. Rural poverty reduction and inequality is linked to smallholder farming because growth in smallholders' incomes reduces rural poverty. One way poverty reduction takes place is through multiplier effects on local markets for other goods and services provided by non-farm rural poor, including construction, manufacturing, supplying inputs and repairs. (World Bank, 2001:67) What African countries south of the Sahara lack, however, is access to new technology and both input and output markets.

With regard to smallholder prospects for the future, optimists, on the one hand, led by Lipton (2004) and scholars at International Food Policy Research Institute, claim that historic relationships between agriculture and economic growth still hold, especially in Africa, where smallholders are "protected" by high transportation costs as well as the cultivation of many non-tradable food commodities. Smallholder pessimists, however, such as Maxwell (2004) , suggest differently that smallscale agriculture is becoming

increasingly uncompetitive in the face of the revolution in supply chains and the globalization of food trade. Vorley and Fox (2004) contend similarly that the efficiency of small holder farming may be breaking down as the small farms' superior labor and land productivity is trumped by the higher costs of dealing with buyer-driven global food chains with new forms of private sector governance, imperfect competition in processing and retail, and little residual value to be shared with other actors in the chain. Moreover, Vorley and Fox also see that primary producers and processors face domestic markets that start to take on characteristics of export markets, as restructuring spreads in the wake of global processors and retailers' expansion into mid-income countries like China, SE Asia and most of Latin America (2).

Differently, however, in terms of procurement by franchise stores in remote, emerging markets, Bienabe and Vermeulen (2007) contend that chances are better for small scale farmers if stores have flexible procurement options; small-scale farmers have land in close proximity to the supermarket; good communication and coordination exist; long term commitment and technical support are provided, and interest free farm loans and diversity in product supplies are made among farmers (2).

According to The Consultative Group on International Agricultural Research (CGIAR) and Albu, et al., 2005, smallholder farmers' livelihoods depend on much more than food production. Attention has recently been focused on not only working with farmers to improve agricultural production and productivity, but also broadening their activities to include processing and marketing. Challenges in making markets work for the poor, that will be discussed in more detail below, include: building connections and trust between actors in the market chain; supporting small-scale producers to collaborate and coordinate to achieve economies of scale in transactions with buyers or suppliers; increasing channels of information and market intelligence to rural producers; and helping rural producers understand and better satisfy the product, process and delivery standards required by buyers. Simon Maxwell (2004) further suggests that the growth potential for smallholder agriculture lies chiefly in non-staple production, and the extent to which smallholders can deliver predictable and traceable volumes of high quality produce to increasingly sophisticated and integrated market agents.

Smallholders and Contracts

Chirwa and Kydd (2006) find evidence that institutional arrangements, like private sector contracts, matter when it comes to improving the lot of smallholders in the tea sector in Malawi(1). This study found that smallholders that had contracts with commercial enterprises produced more productively than those that had contractual arrangements with the reformed state-operated factory. Differences between contracts with these two agricultural actors appear to be due to differential services offered by commercial enterprises, including extension services and input credit. Bundled contracts, including services that improve input use among smallholders, also appear to be important for productivity improvements in smallholder tea. (1)

Bank Credit to the Private Sector

According to Sacerdoti (2005), a key characteristic of Sub-Saharan Africa is that the stock of bank credit to the private sector, with the exclusion of South Africa and Mauritius, remains very low, when compared with the situation in other developing countries (4). One important issue that needs to be addressed is the extent to which pressure by government domestic financing requirements has led to limitations of credit to the private sector (5). Moreover, agricultural specialized banks, generally created by the state, have become insolvent in many countries, or had to be rescued at large public cost (14). Provision of credit to small farmers faces major obstacles as well, due to the limited availability of collateral. Sacerdoti (2005) concludes that efforts must be made for farmers to regroup into strong cooperatives, ones that can provide adequate guarantees to banks (21).

Very recently, mobile devices, like cellphones, have shown promising potential to effectively bring financial markets to the rural poor, allowing banks and other lenders in urban centers to provide services like loans and saving accounts to a new population (Nicholson, 2007). With mobile phone networks spreading fast in developing countries, microfinance institutions, providing small loans and other services to the poor, can provide bank-like services, according to Nokia and Vodaphone, that are technologically up-to-date and widely available. In the case of Kenya, the formal banking sector reaches just 19 percent of its 36 million people.

Enter Jamii Bora (“good families in Swahili), the largest microfinance institution in that country. How do cellphones bring banking to the smallholder? Once a client has logged in with a fingerprint, authenticating their identity on the point-of-sale device, they are connected to the central data base in Nairobi. Cash is paid and received through loan officers or direct sales agents in places like gas stations and small shops, which then settle their accounts with Jamii Bora. At the end of each day, according to Ingrid Munro, founder and manager of Jamii Bora, “we know the cash position of each branch. By being on the cutting edge or technology, we have the capacity of reaching the poor and remaining financially stable. What many organizations do is raise the interest rate. We refuse to abandon the poor.” (Nicholson, 2007)

Community-Based Credit/Savings Organizations

Over the past decade in Uganda, Kenya, Tanzania and Malawi, community-based organizations for credit and savings have seen a multiplication in rural areas, some instigated by non-governmental organizations. (Ellis, Freeman, 2004.19) For this paper’s purpose, credit groups for smallholders are of particular interest, but also of prominence are burial groups and women’s groups. Many of the credit groups are created for particular purposes, and take the form of rotating savings and credit associations,

whereby members pay in an agreed regular contribution, and take turns utilizing the collected funds of the group.

Private Agribusiness

According to Chrispeels (2000), to eliminate smallholder malnutrition and hunger, food production and purchasing power both need to increase in developing countries. But how can smallholders increase yields on available land?

Some observers suggest that the answer to this question lies in more organic, sustainable, regenerative agriculture Buchenau (2007). Chrispeels (2000), on the other hand, reasons that organic farming is already practiced by the poor, namely because they can't afford fertilizers, pesticides and irrigation equipment in the first place. The results of organic farming, he suggests, lead to soil exhaustion, depressing yields, and pushing agriculture onto more fragile, erodable soils.

Delgado (1999) views the private sector as playing an enabling role in smallholder agricultural systems, in what marketing literature refers to as "system nodes." These are points of intersection, or "nodes," between large scale commercial agribusinesses and smallholders, ones that provide important inputs and/or market outlets, thereby sustaining the production of large numbers of small producers. Such "nodes" operate, Delgado notes, with little or no government involvement.

Agricultural Biotechnology and Globalization

A different tack is taken by some sectors of private agribusiness, ones that suggest that some solutions to problems of the agricultural poor in developing countries center on genetically modified (GM) crops, an approach that is research-driven, and led by the private sector. Persley (2000) notes that several large corporations in Europe and the United States have made major investments in biotechnology to produce improved plant varieties of importance to large-scale commercial agriculture, but also have important potential applications to address food security and poverty of the poor (4). In the case of Sub-Saharan Africa (Kenya, South Africa and Zimbabwe), specific issues related to biotechnology are how to develop institutional capacity for risk assessment and management, to access information on biotechnological developments elsewhere that may have application to Africa, and to develop the necessary human resources and infrastructure (5).

Those who oppose GM crops are quick to point out profit motives, and that GM technology benefits chiefly multinational corporations themselves, not the smallholder. In the midst of this debate, Bigman's (2002) work includes authors who take more nuanced approaches to finding ways out of this shouting match. Bigman suggests in his introduction that while business-driven GM globalization underway over the last few decades may have benefited some countries, it is now felt that it may have by-passed others, especially in Sub-Saharan Africa, West Asia and the former Soviet Union. He posits that even in countries that benefited from globalization, those in remote rural areas

did not, and poverty in those regions actually increased. Mazoyer (2001) argues similarly that if poverty and malnutrition are to be eradicated in poorer developing countries, it is not a question of choosing between globalization and non-globalization, but rather a choice between liberal globalization that blocks and excludes the poor, and more carefully considered, organized and regulated globalization (27).

The private sector to date controls, most releases globally of biotechnology and transgenic crops (tGMOs) (Osgood, 2006). Yet as integrated solutions for poor and small scale farmers, the Osgood suggests that few benefits for intended recipients have materialized, because the focus on agro-biotech research and development has been on herbicide resistance and bio-tech for four crops for large scale and profitable markets, including corn, soybeans, cotton and canola. These crops are not best suited for meeting the needs of smallholders who do not have income for herbicides, and whose crops for the most part face insect challenges not matched to commercialized bio-tech events. The author analyzes private firms' limitations, including internal incentives and intellectual property rights, and concludes that there is need for far more systemic approaches, including public-private partnerships, to improve the lives of small agricultural stakeholders. While private companies currently hold the power to decide which technologies will be developed and commercialized or donated, these investment decisions are taken with out the voice of the small-scale and poor farmer. Osgood (42) concludes that current corporate global practices are a fine paradigm for selling razor blades or shampoo, but are fundamentally different for seeds, owing to the latter's interactivity with the environment. Because of these environmental challenges, recipient countries badly need their own appropriate bio-safety legislation and consumers' rights laws (Osgood, 2006). Vorley and Fox (2004) go further to suggest that corporations adopt fairness in agribusiness-smallholder trading as a given standard, rather than a consumer driven choice. This approach would include rethinking supply chain management in favour of smallholders (2).

Other studies (Vorley, 2002; Orden et. al., 2004) suggest the increasing importance of market-oriented agribusinesses with high levels of collaboration and associative relationships with downstream processors and retailers. What has emerged in this scenario is a new minority of commercial farmers and entrepreneurs who are being connected into a global food economy and even, as will be seen elsewhere in this paper, with retailers. These farmers have emerged as a vital part of agribusiness, and the lines between smallholders and agribusiness are becoming increasingly blurred through this collaboration.

It should not be omitted, however, that private sector progress has been made in several sectors (Eleni, Haggblade, 2001). These include private seed supply industries that have been critical to maintaining high-yielding hybrid maize varieties throughout East and Southern Africa; private exporters of flowers, vegetables and tropical fruits to Europe and the Middle East through export marketing and often through private input supplies; large scale intensified dairy producers in Kenya, whose practices were later

adopted by smallholders; and private veterinary services, ones that have played a crucial role in the delivery of vaccines and veterinary services in East and Southern Africa (40).

Cooperatives: Rural Producers' Organizations

How should smallholders respond to changes in agrifood organizations, like the rise of supermarkets throughout the world? One obvious answer is to treat these changes as a commercial reality and to organize to engage with this reality. In concrete terms, this means to forge direct relations with new markets, as well as with providers of advice, with NGOs, with private players and the state. The logic of such engagement with new markets means small farmers must build a new generation of economic organizations that perform at higher levels of specification, coordinate technology, and improve scheduling. For more insight into changing agrifood organizations, see examples from Latin America in (Reardon, Berdegue Farrington 2002).

Given increasing market instability and competition for smallholders, these farmers need to become more competitive, and build capacity to improve their market position. One way to enhance such productivity is through the advantages of economies of scale (Bienabe and Sautier 2005). Developing producers' organizations can help to achieve these economies through pooling of credit, information, labor force and transportation means for selling products and buying inputs. Bienabe and Sautier (2005) point out that such aggregation of input activity, production, processing and marketing processes into larger economic units, like farmers' associations or cooperative organizations, have been shown to improve individuals smallholders' bargaining power and hence market position (2,4) . Rademakers (2000) adds value to this discussion by noting the role business associations can play in facilitating process-based, characteristic-based and institutionally-based trust between players in the supply chain (151).

Bienabe and Sautier (2005) propose that collective marketing through rural producers' organizations can be a means to overcome constraints faced by small scale farmers, including lack of capital, imperfect information, geographic dispersion , poor infrastructure and communications (1). These constraints are particularly apparent with State withdrawal from productive activities, concurrent with a private sector that is still underdeveloped. Acting collectively through farmers' associations, farmers can mitigate transaction costs, and therefore accrue benefits from collective marketing.

Rural Non-Agricultural Employment

Recent evidence suggests an increasing awareness that food systems can no longer be viewed as a way of moving basic staples from farm to local plate. Growing interest in rural non-agricultural employment (RNAE) has emerged because producers now often supply long and sophisticated market chains, and often market processed and branded products, mainly to urban consumers (Barghouti et.al., 2004). It is generally accepted that non-agricultural employment excludes primary production, whether in agriculture, fisheries, or livestock, but covers manufacturing or agro-processing, transportation and other non-production areas. Davis (2004) found that in more than 55

studies of rural economies, in almost every case, rural non-agricultural employment provided between 40% and 60% of incomes and jobs. Davis moreover cites that much of the non-farm activity arises from trading and processing of agricultural products, providing goods and services for the local, rural economy. Little of these goods and services earn income outside of the rural context, and thus its growth is largely dependent on agriculture. (1)

Chira, Kadzandira and Mvula (2005) note that the liberalization of agricultural marketing in Malawi was expected to provide incentives for the participation of the private sector, with consequences of competitive marketing benefiting smallholder farmers through better marketing arrangements and higher prices. (1) Nonetheless, evidence from rural Malawi suggests that poor smallholder farmers in particular have been the main losers through unfair trading practices, the monopsony power of private traders, as well as lack of reliable agricultural markets for agricultural produce and inputs. With respect to private traders, most studies suggest their lack of capacity to reach remote rural areas, and they usually face constraints such as transport facilities, storage facilities, and processing capacity. Moreover, and importantly, (Chira, et.al., 2006) note the most cited problem associated with private traders is cheating on measurements and weights, more so than with previous government-controlled agencies. (14).

Tripp (2001) and others underscore the importance of non-agricultural rural employment and note, in general terms, that in the future, smaller and smaller proportions of the population will be involved in farming, and that larger numbers of people will be employed in other parts of the rural economy. Dorward et al., (2004) similarly claims that significant poverty reduction depends on agricultural growth that stimulates corresponding growth in rural non-farm employment, along with institutional development, markets and trade relations favoring the non-farm sector. The impact of these developments on the smallholder is that their capacity to provide the sole means of survival for rural populations is diminishing, as is the reliance on primary agricultural development to improve lives in rural areas (Dorward et al., 2004).

Farmer Organizations for Market Access

Widespread interest in recent years in farmer organizations (FOs) has seen them as mechanisms for supporting agricultural development, and as an important means for smallholders access to markets and services (Chirwa, et.al.,2005). Key stakeholder interests in FOs include farmers themselves, the private sector, and NGOs working in the agricultural sector. Different interest groups also exist among farmers, namely, between members and non-members, leaders and ordinary members, and members with different commodities and enterprise interests. Key challenges for farmer organizations, according to Chirwa, et. al., have been identified as: involvement of members as owners and suppliers of capital, in leadership and succession, governance, basic literacy, business skills, accountability, independence from local and national politics, and weakly enforced regulations (4,5). It is noteworthy that the National Smallholder Farmers Association of Malawi (NASFAM) emerged from USAID supported Smallholder Agribusiness Development Programme, established in 1995, and grew, by 2004, into 20 more associations to include more than 100,000 members in more than 5,000 clubs,

representing nearly 5% of farming house holds in Malawi (6) Key successes have been attributed to: a focus on highly motivated farmers; good business opportunities; highly professional services, careful market and client research; concentration of developing market linkages with a range of service providers, rather than trying to provide all services by the organization itself (7). Recommendations concerning the private sector include not normally attempting to duplicate or compete with existing private sector suppliers, but rather work with private companies to improve the quality, competitiveness and scope of services to members. (10)

Drawing upon evidence from Mali, Mozambique and Cameroon, and using a framework that links concepts of farmers' collective power and agricultural development, Bingen, et. al., (2003) put forth three kinds of approaches to capacity building: *contract/business* programs such as out-grower and cash-crop schemes that facilitate farmer access to goods and services required for production and marketing of a target commodity; *project/technology* programs, generally mediated by NGOs, that focus on improved technology; and *process/human capacity* investments that also facilitate technology adoption and marketing, but focus initially on the development of foundation skills and social capital, including assistance for collective self-help, literacy programs, marketing activities and decentralized development planning (Bingen, et. al., 2003).

Market Literacy

It is becoming increasingly clear that knowledge is becoming more and more important in global production and competition, and there is a danger that least developed countries will be increasingly marginalized if they do not increase the knowledge content of their economies and diversify them through learning and innovation. Moreover, access to high-speed internet services appear to be one critical factor in knowledge dissemination and, according to Nixon (2007), the south of Africa remains the least connected region of the world, and the digital gap between it and the developed world is widening rapidly (22). Lack of infrastructure is the biggest problem for these societies to become knowledge-based.

According to Rahman and Westley (2001), resource-poor farmers have little or no information on market conditions, prices and quality of goods, the power of collective organization, and the extent to which they can influence the terms in which they engage the market. Yet, according to Tutwiler and Straub (2005), open markets and trade remain the strongest forces for economic development and growth. These authors also propose that markets themselves cannot solve every problem, and must be accompanied by civil society organizations, public policy and financial aid. In addition to technology-led and trade liberalization strategies, what is needed is improved understanding and functioning of market chains in ways that benefit small-scale producers.

The Rise of Supermarkets

Rondot, et. al., (2004) advance the idea that as societies go through different developmental stages, their food consumption system evolves as well. Today, the agri-food and food consumption systems are undergoing rapid evolutionary changes, most

prominently characterized by changes in eating habits. (4) As a matter of note, the agri-food system consists of independent sets of private enterprises, non-private institutions, activities and relationships which together deliver material inputs to the farming sector, produce primary commodities, and subsequently handle, process, transport, market and distribute food to consumers. Behind this convergence of diets is a global interconnectedness of urban middle classes that serves as a driving force for change, reinforced by the rapid spread of supermarket chains.

Bienabe and Sautier (2005) note as well these rapid changes in the organization of marketing channels in the developing world, ones, they suggest, are imposing new constraints for the development of small scale farmers (1). As public marketing boards are dismantled, and wholesale marketing channels are losing ground, supermarket chains are growing in Eastern and Southern Africa, East Asia, as well as in Latin America and Central Europe (Reardon et. al., 2003, Beinabe and Sautier 2005). As a result, food product characteristics are trending to be no longer determined by producers, but by product traders, agro-industries and supermarkets themselves, who set their own product standards. These private standards can, and often do, substitute for missing or inadequate public enforcement of food safety norms, and are used in competition with the informal sector in order to claim superior product quality. Importantly, the rise of supermarkets tends to result in centralized buying and distribution centers, and moves away from traditional brokers to new specialized/dedicated wholesalers and a decline in traditional wholesale systems (Dries, et. al.,2004). Supermarket procurement systems also involve purchase consolidation, a shift to specialized wholesales, and tough quality and safety standards. To meet these requirements, producers have to make new investments and adopt new practices. Weatherspoon and Reardon (2003) contend that these developments are especially challenging for smallholders, who risk exclusion from dynamic urban markets (333).

In light of supermarkets' rise, small scale producers generally lack information, knowledge and resources to meet quality standards and formal supermarket expectations. Moreover, unless formal contractual arrangements are in place, farmers are not likely to invest in improvements to meet supermarket requirements that include product quality and sanitary norms. Such requirements are often beyond the technical and organizational capacities of small farmers.

In the case of Sub-Saharan Africa, the incursion of franchised convenience store chains is occurring anywhere with reasonable road connections. The South African company *Shoprite* reports that the greatest opportunities for expansion lie outside the country's borders, and the company is now doing business in ten African countries. For more information in supermarket retail in Africa, see Weatherspoon and Reardon (2003).

NGOs and Projects

While less in the limelight than other private sector actors, NGO's have proven to be valuable partners in Southern Africa's agriculture, especially in testing and disseminating new soil and conservation management techniques. NGO's have also emerged as key players in technology extension, working with farmers' groups to

establish marketing contacts that, in the African case, contributed to the growth of cut flower and horticultural exports from East Africa. (Sperling et.al., 1995).

Ellis and Freeman (2004) note that villages across their case study countries generally seem to have beneficial experiences with direct assistance they receive from NGO's. Major differences have been made to improve peoples' lives by the provision of piped water, wells, latrines, microcredit schemes, and formation of village groups with specific development objectives. While sustainability of what is accomplished after project completion are weaknesses, Ellis and Freeman (2004) conclude that more useful things are accomplished and left behind to the future benefit of village citizens by NGO's than by governments. Moreover, Ellis and Freeman (2004) observe that the effectiveness of private trading is variable, remote locations are often poorly served, and perceptions of weights-and measures 'cheating' by traders are widespread (19).

Determinants of Agricultural Success: Technology or Market Institutions?

In a diverse set of cases, over time, and across countries, involving numerous studies, new production technology surfaced and resurfaced over and over again as a key instrument of agricultural change for the better. (Eleni, Haggblade, 2001). Success stories focus on major commodity areas where technology boosted production, including: maize, cassava, rice, cocoa, livestock, cotton, dairy, horticultural products and bananas. It is not clear, however, whether smallholders, by and large, have benefited from technological infusion.

Overview

Key issues for smallholders:

- Smallholder farming is challenged with new institutional forms of private sector governance, like buyer-driven food chains and supermarkets with high quality and sanitary standards, yet advantages for smallholders include sustainable incomes and access to technical assistance and credit through contracts;
- Technology, like cellphones, can create access to private banking services for smallholders, i.e. Jamii Bora in Kenya. Similarly community based credit/savings organizations work well for the smallholder;
- Biotechnology has produced benefits for large scale commodities, but has yet proved beneficial for the smallholder;
- Rural producer organizations (cooperatives) have built capacity to improve smallholders' market position that suffers from lack of capital, poor information, geographic dispersion, poor infrastructure and communication;
- Rural non-agriculture employment depends on smallholder agriculture, and accounts for 40%-60% of new job opportunities for smallholders;
- Market literacy needs to increase and the digital gap needs to decrease if smallholders are to benefit from learning and innovation;

- NGOs have improved water quality, wells, latrines, microcredit schemes, formation of village groups that have indirectly improved the lot of smallholders.

Roadmap for WorldAgInfo:

- Focus on the rapid rise of supermarkets and their impact on smallholder agriculture;
- Investigate further mechanisms that make markets work for the smallholders, including liberal vs organized, regulated globalization;
- Look at private sector role in provision of education in leadership; governance; market literacy, independence from politics; regulatory reform and technical expertise.
- Further look at smallholder producer organizations for access to economies of scale.

Most valuable sources in References :

Bienabe and Sautier et. al., 2005 and 2007.

Delgado, 1999

Dorward and Kydd, et. al., 2004, 2005

Dries, Reardon, Swinnen 2004