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The Contribution of Subsistence Farming to Food Security in South Africa
Authors:
Baiphethi, M., Jacobs, P.
Journal Title:

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Suggested keywords:
Subsistence production, food security, food access, agricultural markets, smallholder farming, households, food supplies, food expenditure,
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Poor households access their food from mainly three sources: the market, subsistence production and transfers from public programs or other households. In the past rural households produced most of their own food whereas urban households purchased most of their food. However, recent studies have shown an increase in dependence for

both urban and rural households on market purchases, in some cases reaching 90% of the food supplies. Consequently, food expenditures can be as much as 60 to 80% of the total household income for low-income households in some parts of Sub- Saharan Africa. This could be mitigated, especially for those most vulnerable rural food insecure households, by the promotion of subsistence/smallholder production. Therefore, production of food for self-provisioning has to significantly increase as a fall-back against a backdrop of inflation and proliferating cash needs for both urban and rural poor households.

The main aim of the paper is to discuss the contribution of availability and access to improved farm inputs for subsistence/smallholder farmers in improving household food production, hence food security. This will feed into the broader questions concerning possible policy interventions needed to mitigate against the impacts of increased food prices for both the rural and urban poor. It is expected that increased subsistence production will reduce dependence on market purchases and improve the availability of food for the most vulnerable households. The paper will also contribute towards the development of the most likely scenarios to enhance sustainable food security through the subsistence production of food and estimate the likely costs involved to ensure food security and sustainable livelihoods.

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Tania Fraser /Hsrc
2009/05/18 08:31 AM

To Hanlie Rossinger/Hsrc@HSRC
cc
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Subject New Client Report 2008/09- FS-Baipheti

Dear Hanlie,

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Regards,

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THE CONTRIBUTION OF SUBSISTENCE FARMING TO FOOD SECURITY IN SOUTH AFRICA

Mompati N. Baiphethi & Peter T. Jacobs

PhD Intern & Research Specialist

Centre for Poverty, Employment and Growth

Human Sciences Research Council

March 2009

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centre for poverty employment and growth

Human Sciences Research Council

April 2009

Acknowledgements

This paper forms part of the Food Security Project jointly funded by ComMark Trust and the HSRC Parliamentary Grant Allocation – "Ensuring affordable quality food for poor households: Considering the Short- and Long-Term contribution of Food Security to the government's poverty and unemployment reduction strategies". The support of both ComMark Trust and the HSRC are gratefully acknowledged. The insightful review and comments on the original draft by Tim Hart and Innocent Matshe of the Human Sciences Research Council, Pretoria, and Ward Anseeuw, CIRAD Researcher at University of Pretoria, Pretoria are greatly appreciated. The views expressed are those of the author and do not necessarily reflect those of any other party.

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Abstract

Poor households access their food from mainly three sources: the market, subsistence production and transfers from public programs or other households. In the past rural households produced most of their own food whereas urban households purchased most of their food. However, recent studies have shown an increase in dependence for both urban and rural households on market purchases, in some cases reaching 90% of the food supplies. Consequently, food expenditures can be as much as 60 to 80% of the total household income for low-income households in some parts of Sub-Saharan Africa. This could be mitigated, especially for those most vulnerable rural food insecure households, by the promotion of subsistence/smallholder production. Therefore, production of food for self-provisioning has to significantly increase as a fall-back against a backdrop of inflation and proliferating cash needs for both urban and rural poor households.

Even though subsistence production is important for household food security, the productivity of the sub-sector is quite low, even by the standards of this subsector. Poor yields may be one important reason why urban and rural households either abandon or are disinterested in agricultural production. The productivity of the subsistence and semi-subsistence farmers can be improved by increasing access to assets and inputs, as they are the major determinants of the ability to participate in agricultural input and output markets and secure livelihoods through agricultural production. The main assets needed are land, water and human capital. The lack of assets for agricultural production in most parts of SSA is evidenced by unsustainably small and falling farm sizes, land is degraded, and investment in irrigation is negligible, poor health and education thus limiting productivity and access to other livelihoods options.

Subsistence agriculture can play an important role in livelihoods creation amongst the rural poor. There is a need to significantly increase the productivity of subsistence/smallholder agriculture and ensure long-term food security. This can be achieved through encouraging farmers to pursue sustainable intensification of production through the use of improved inputs. This will require a dramatic increase in the use of fertilizer, organic inputs and conservation investments combined with the development of well-functioning input and output markets so as to help farmers acquire and use improved inputs, market their (surplus) output and reduce transaction costs and risks. Increased productivity will reduce pressure on marginal lands as the intensification of cultivated land will reduce pressure to crop fragile marginal lands. In improving access to improved inputs, access to off-farm income is also important as it is used to purchase farm inputs and investment hence food security. Finally, there is a need to determine ways of indentifying cost effective ways of improved access to inputs by among others improving the delivery, and assisting farmers to earn cash to purchase the inputs (eg Malawi, Zambia and Mozambique).

1. Introduction

The main aim of the paper is to discuss the contribution of availability and access to improved farm inputs for subsistence/smallholder farmers in improving household food production, hence food security. This will feed into the broader questions concerning possible policy interventions needed to mitigate against the impacts of increased food prices for both the rural and urban poor. It is expected that increased subsistence production will reduce dependence on market purchases and improve the availability of food for the most vulnerable households. The paper will also contribute towards the development of the most likely scenarios to enhance sustainable food security through the subsistence production of food and estimate the likely costs involved to ensure food security and sustainable livelihoods.

In order to address the main objective, the paper will specifically deal with the following questions:

- To what extent do people produce their own food and how much does this add to their current levels of food security (livelihoods)? What scope exists to improve (up scale) this and how could this be achieved?
- Would subsistence production increase the value of food available? In other words would you get more for your money by producing your own food? Where would we get information/data to actually work this out and make an accurate assessment?
- Are low external input sustainable agriculture (LEISA) principles and technologies important in this regard (initially self-production with the possibility of expanding to produce saleable surplus) and also important in mitigating the effects of poverty by improving household production for own consumption in marginal areas?

The paper will perform a review of the relevant literature. It is expected that from the review, important lessons will be learnt from other parts of the world, specifically Sub Saharan Africa, and where possible Southern Africa so as to learn from these experiences and how they can inform interventions in South Africa. From this exercise important conclusions and recommendations will be made as regards the importance of subsistence production and improved access to farm inputs and technologies for sustained livelihoods and improved food security.

2. Subsistence production and food security: an overview

There is a general consensus that households access food mainly through three sources. These are the markets, subsistence production and transfers from public programs or other households. In the past a distinguishing factor between rural and urban households' food access, was that rural households produced most of their own food whereas urban households purchased most of their food. Recent studies have shown substantial increases in dependence on market purchases for both urban and rural households (Maxwell et al. 1998 & Ruel et al. 1998). As a result food expenditures can be as much as 60 to 80% of the total household income of low-income households (Ruel et al. 1998).

In most of SSA, the problem of food insecurity is even more serious among the urban poor as they are mostly dependent on the market, unlike their rural counterparts who are able to exploit natural resources to provide for food or to generate income. For urban areas, the ability to earn cash income and prices of food are crucial components for the achievement of household food security (Ruel et al. 1998). Therefore, the efficiency of the marketing and distribution systems, household purchasing patterns, ability to produce own food, access to public transfers (food subsidies or food aid) or private transfers (exchange with rural relatives) are some of the important factors affecting the cost of food, especially, for the urban households.

While farming still remains important for rural households, people are looking for diverse opportunities to increase and stabilize their incomes. Therefore, rural livelihoods are not solely based on agriculture but on a diverse array of activities and enterprises (Chapman and Tripp 2004). The extent of dependence on non-farm income sources varies between countries and regions. Evidence from a sample of rural villages in Tanzania (Chapman and Tripp 2004, Ellis and Mdoe 2003) showed that on average half of the household income came from crops and livestock and the other half from a from non-farm wage employment, self-employment and remittances. The proportion of non-farm income was higher for the upper income groups than for the lowest income groups. Therefore, the poorest households were more reliant on agriculture, and the reliance on agriculture decreases with increased diversification into non-farm activities. In another study of 11 Latin American countries (Reardon et al. 2001) non-farm income accounted for 40% of rural household incomes. The extent to which households, especially rural, are able to feed themselves depends on non-farm income as well as their own agricultural production (Chapman and Tripp 2004) since non-farm income is used by many households to purchase their staple grain, thus the concept of subsistence agriculture needs to be understood in this context of diversified income sources. According to Jayne et al. (1999), 61% of maize growing households in Kenya were found to be net buyers of maize. Therefore such households may be more interested in lower food prices than in investments to increase subsistence production. It is however generally believed

that surpluses from off-farm income can provide farmers with the security that enables greater on-farm innovation. This depends to a large extent on whether the households diversified out of agriculture due to a lack of opportunities for on-farm innovation or if they are exploiting a particularly high demand for their labour off-farm (Chapman and Tripp 2004). Furthermore, on-farm investment is likely to occur when non-farm work is of short duration and the home farm has not been neglected.

According to Bryceson (2000 2002), based on a case study of seven countries (Nigeria, Ethiopia, Tanzania, Congo-Brazzaville, Malawi, Zimbabwe and South Africa), the countries were all undergoing "de-agrarianisation" and "depeasantisation". This was driven mostly by, restrictions on access to land (South Africa), urbanization (Congo-Brazzaville and Nigeria) and the removal of agricultural subsisdies with the enforcement of structural adjustment policies (SAPs) in the other four countries. During this period, peasant agriculture, with its subsistence orientation and relatively low yields, was discouraged in favour of agro-industrial production. Despite the above changes, African rural dwellers value the pursuit of farming activities (Bryceson 2000). Subsistence production of food is gaining importance against the backdrop of food price inflation and proliferation of cash needs but a green revolution is still to happen in SSA. The use of improved input packages is declining since effective input packages have not yet been developed especially for the drier parts of the region. In addition, the input packages that exist for the higher rainfall areas need to be supplemented with expansion of intermediate and appropriate technology to improve returns to labour. To address the above, there is a need to look at how to deal with SSA's food deficit and more specifically the role that peasant farmers can play in increasing food output. This underscores the importance of subsistence production and/or smallholder production in order to increase food supplies and thus cushion households from food price shocks and thus improve household food security. Even though increased subsistence production may play an important role in reducing food insecurity, access to food from such producers also warrants careful consideration. The section that follows addresses the issue of food access and institutions that may drive or constraint food access.

3. Food access and institutions

Amartya Sen's seminal work on food insecurity in the 1980s reoriented and expanded insights into food security with greater prominence to food access. Some earlier researchers gave marginal and fragmented attention to food consumption and the nutritional intake issues. But by and large before Sen, the most influential research on food security was almost exclusively concerned with food availability and production. Naturally, the importance of these supply-side issues in the food security debate could not be ignored. The sharp dichotomy between supply-side or demand-side perspectives on food security impeded holistic and in-depth assessments of food insecurity. Virtually all economists had upheld a supply-side view, in which they focused on national level food production, availability and access. Nutritionists, on the other hand, paid closer attention to food demand or consumption at the household level. However, over time the emerging consensus was that sufficient

agricultural output did not automatically translate into the reduced food insecurity, either transitory food shortages or chronic hunger (Maxwell and Slater 2003, Webb et al 2006).

The debate opened by Amartya Sen and his co-workers, most notably Jean Dreze, focused the debate on food security and food entitlements. This brought to the fore the roles that institutions, markets and states have in food trading, play in improving access to food. Although food access is a main focus in modern food security debates and prominently influences food security, Webb et al (2006) have noted with concern that there is no precise measurement of access. Webb and Thorne-Lyman (2006) specifically notes that food access is "embedded in markets, prices and legal systems". Access to food seen in this way is thus closely tied to the notion of institutions, following recent thinking in economics (Dorward et al 2005). To get some idea of the potential role of the agro-food markets in food security, let us look at recent developments in agro-food value chains with specific reference to smallholder farmers in South Africa.

3.1. Some evidence on South African agricultural markets

There are typically three most common marketing destinations for smallholder farmers, namely fresh produce markets, informal markets and supermarket chains.[1]

The Johannesburg Fresh Produce Market (JFPM) is the largest fresh produce market in Southern Africa and an important outlet for smallholders in Limpopo and elsewhere. The JFPM board has been active in expanding access to its trading facility to smallholders as well as informal traders. Examples of how the JFPM board has been trying to improve market access to smallholders include the following: it is conducting targeted extension officer training programmes, so that extension officers are better able to convey or transmit market information (such as prices, packaging, quality, storage and delivery times, market agents, etc.) to farmers in localities as far as 300 kilometers away; it regularly runs small farmer and informal trader open days in which these market actors are brought on tours to the JFPM facilities to raise their understanding of the workings of fresh produce markets and how it can benefit them; and more recently, the JFPM has worked together with selected municipalities (e.g. Vhembe District Municipality) to build decentralised pack-houses and grading point facilities so as to better integrate small and emerging farmers into fresh produce markets. These 'satellite' facilities aim to significantly reduce the transport costs for smallholders and with modern cold storage facilities will enable smallholders to deliver better quality produce to the JFPM and capture more benefits.

[1] This section is based on a cases study of smallholder farmers and markets in a report on strategies to develop the "second economy" (PLAAS 2008).

Informal markets in which large numbers of small traders participate are common across the agro-food value chain. In their study of the Tshakhuma and Khumbe informal markets in the Vhembe district, Nesamvuni et al (n.d) found that both markets trade mainly in sub-tropical fruits. Women comprise roughly two-thirds of the sellers, with another 30% mainly children, and 56% of women respondents reported income from trading as their only source of livelihood. Of greater relevance to this study is the extent to which these informal traders use smallholder farmers as their sources of supply. Smallholders supply a limited range of fruits with low input intensity and indigenous varieties (such as mango and avocado). However, most of the fruits sold in the market have been bought in relatively larger volumes from large-scale commercial farmers in the Levubu valley, transported and delivered to Tshakhuma and Khumbe by hawkers. To raise the supply of fruits from smallholders to these markets, Nesamvuni et al (n.d) recommended downstream contract arrangements between smallholders and informal traders. But complementary investments in storage facilities and transport may be needed to improve the absorption capacity of these informal traders as well to reduce the rapid deterioration of produce on display that force traders to sell at huge discounts and often at a loss.

Downstream linkages of smallholder farmers with large-retail chains (or supermarkets) have received increasing attention in recent research because supermarkets attract a mass consumer market. As a result of the growth of South African supermarkets and their movement into smaller rural towns, the farming market space has become radically altered. Alongside this development, rural poor households (including many smallholder farmers) are increasingly net consumers rather than net producers of foods and they tend to purchase their food from the expanding network of supermarkets in nearby rural towns and cities. These expanding trends in the sources of local food purchases in communal villages have been observed in Limpopo, Eastern Cape, and KwaZulu in the post-1994 era (D'Haese and van Huylenbroeck 2005; Louw et al 2007). The 2005/06 Income and Expenditure Survey (IES) of Statistics South Africa reveals just how extreme this development has now become: for grain products, 92% of rural black households report that they effect most of their purchases in chain stores or other formal sector retailers.[2] For meat, dairy, and vegetables, the figures are 94%, 94%, and 72%, respectively. Supermarkets are making foods available at lower prices than informal vendors in local markets because of the economies of scale advantages this 'networked retailer' enjoys in procurement. Their competitors for the local demand, especially informal traders, have often been forced out of business because they are unable to withstand the competitive pricing of these large retailers. While the implications for consumers would appear to be positive, the consequences for smallholder farmers are mixed but on the whole appear to be negative.[3]

[2] Unfortunately, the design of the 2005/06 IES does not enable one to estimate what share of expenditure is direct to particular types of establishment, merely the share of households who generally purchase particular types of items at particular types of establishments.

[3] In fact to suggest that the implications for consumers are mainly positive is more of an in-principle conclusion than an observation; over the period, South African consumers have experienced at least two bouts of rapid food price inflation, and a case could be made that that pervasiveness of supermarkets has aggravated food price inflation rather than attenuated it.

Supermarkets generally specialize in supplying a targeted group of customers with niche products of relatively high value. As such, it offers a potential market to smallholders that produce high-value agricultural foods, which are usually produced in smaller volumes. To explore ways in which smallholders can realize the advantages to be derived from access to this market, Louw et al (2007) suggest a more nuanced understanding of the purchasing strategies and other goals of supermarkets. Large supermarkets that serve mainly high-income groups need to be split from decentralized chains that procure their fresh agro-foods from local suppliers. The first type of supermarket chain operates a centralized procurement and distribution system which is designed to reduce transaction costs. Within such a system, separate and once-off transactions with scattered smallholders increase transaction costs and lower efficiency (Louw et al 2007). To qualify as a supplier to large high-value supermarkets, smallholders need to comply with a host of standards, such as organic farming certificates, food quality and safety regulations and packaging criteria. As a consequence, most smallholders are not able to take advantage of opportunities offered by these agro-food chains.

But localized supermarket chains, in contrast to the above type, often rely on small-scale farmers in close proximity to supply the fresh produce needs of their customers. Louw et al (2007) report case study evidence of the Thohoyandou SPAR, the largest supermarket in Limpopo, as an example of a success story of the linkages smallholders have managed to forge with a local supermarket in a specific area. Smallholders supply up to 30% of SPAR's fresh vegetable sales, such as cabbages, spinach, carrots and beetroot. Prices and quality are verbally negotiated when farmers deliver the products to the store, following the inspection of a sample of the produce. Evidence from recent interviews with the SPAR manager revealed wide variations in the numbers of smallholders participating in this arrangement. In 2004, the number of smallholders participating in this arrangement had grown to approximately 23 but then declined to a more recent average of 15 farmers per year. Interest free loans and training programmes to ensure the supply of a better quality, provided by SPAR in the earlier period, seems to have dropped from this arrangement.

Better and sustainable market access of smallholders to the opportunities opened by supermarkets turns on the strategies to reduce transaction costs. To lower the transaction costs for both the smallholders and supermarkets, Louw et al (2007:548) advocate strengthening forms of collective action among smallholders to promote equity and competitiveness. More specifically this should facilitate coordinated efforts to: train farmers in product quality and marketing, enable farmers to comply with delivery schedules, overcome transport problems, and access cheaper inputs.

4. Access to improved inputs and technologies

Recent research indicates that subsistence food production is increasing in importance in some countries, mainly as a fall-back against a backdrop of inflation and proliferating cash needs (Bryceson 2002). Rural family farmers in SSA continue to value the pursuit of farming activities for home consumption. In South Africa, this is

even more important against the backdrop of food price differentials between the urban and rural households, the latter seem to pay higher prices than the former while they currently have access to productive resources currently not being used to their full potential. South African studies have shown that the number of households engaging in subsistence agriculture as a main source food and income is declining while there is a rise in the number of households engaging in subsistence production as an extra source of food (Aliber 2005 2009). However, there is evidence of agricultural resources (especially communal land in former homeland areas) being underutilized (ibid).

In the context of rising food prices, Smale et al (2009) propose improving agricultural production through the use of targeted subsidies in favourable environments (eg. good soils and moisture), and market infrastructure. The above can be achieved through the delivery of improved varieties of seed, fertilizers and other inputs coupled with targeted subsidies in order to realise higher yields. This will result in the expansion of domestic staple food production in order to improve food security and reducing dependence on food imports. According to Bryceson (2002), low domestic food production has a negative impact on the country's general standard of living, so there is reason to move towards improved agricultural production. However, the productivity of the staple food production is low due mainly to the decline in the use of improved input packages by farming households. This is partly due to the reduction in support for farmers to continue taking up the improved input packages as a result of structural adjustment programmes. The use of improved input packages could be increased by reinstating some 'smart or targeted' input subsidies (Smale et al. 2009 Bryceson 2002). These inputs should be made available at affordable prices and tailored for the local climate and soil conditions. It is should be noted that smallholder farmers in most parts of SSA rely heavily on informal channels to access inputs. (Smale et al 2009). Some of these channels for seed access include on-farm seed saving, farmer-to-farmer exchange, and unregulated sales. For Southern Africa, smallholder farmers access only 10 percent of their seeds from the formal markets. Therefore, informal or village markets are important channels that may need to be improved or developed in order to improve smallholder farmer access to inputs.

In Southern Africa, some countries (Malawi, Zambia and Mozambique) have embarked on some of these 'smart' subsidies and the commonly cited is the Malawi case with the government's Agricultural Input Subsidy Program (AISP), with significant development aid support, since 2005 (SOAS et al. 2008 Dorward et al. 2008). The main objectives of the program were to improve smallholder agricultural productivity; improve food and cash crop production, and reducing vulnerability to food insecurity and hunger. The program resulted in increased crop productivity during the two years of its implementation, especially increases in maize, which is a staple food for Malawians. In addition, the country was able to realize surpluses in maize production, allowing the country to export to other countries in the region like Botswana, Zimbabwe, Lesotho and Namibia (FANRPAN 2008).

The changes in crop production (mt/ha) before the inception of the programme (2004/2005) and after the inception of the programme (2005/2006 & 2006/2007) are indicated for different crops in Table 1 below.

Table 1: Crop productivity in Malawi over the three different seasons

Crop	YIELD (mt/ha)		
	2004/2005	2005/2006	2006/2007
Maize	0.83	1.61	2.04
Rice	0.91	1.75	1.95
Groundnuts	0.57	0.83	1.02
Pulses	0.42	0.62	0.69
Cotton	0.67	0.94	1.04
Cassava	14.27	17.13	18.78
Sweet potatoes	8.08	13.51	15.32
Tobacco	0.51	0.89	0.99
Wheat	0.46	1.20	2.30
Millet	0.30	0.65	0.72
Sorghum	0.28	0.77	0.86

Source: Adapted from FANRPAN, 2008

From Table 1, we can see that the AISP led to a general increase in yields during the years in which it was implemented. For maize, the yields per hectare more than doubled during the first year of implementation (0.83 mt/ha to 1.61) as opposed to the previous year (FANRPAN 2008). Yields continued to increase in the subsequent production season. In addition, the country was able to attain surpluses above the national requirements for maize and other crops (Dorward et al 2008 FANRPAN 2008). Table 2 shows the surplus (deficit) that Malawi realized above (below) the national requirements (FANRPAN 2008).

It is worth noting that the majority of the producers in Malawi are smallholder farmers, some of whom were targeted by the input subsidy program. The fertilizer subsidy reached 1.7million vulnerable maize producing households, 250 000 tobacco and cotton producers, and 2 million households received open pollinating varieties (OPVs) and higher yielding hybrid seeds (SOAS et al. 2008 Dorward et al. 2008). Based on some semi-formal engagement[4] with various stakeholders in Malawi in late 2008, the average area cropped by most of the beneficiary households ranges between 0.5-0.6 ha of land and production is primarily rainfed/dryland. It is generally agreed

[4] The author participated in a FANRPAN Workshop in Malawi where the AISP was flighted and the workshop was followed by interviews/discussions with some stakeholders in Malawi, mainly based around Lilongwe.

that the programme, and significantly favourable weather, resulted in the country being able to move from being food insecure to a surplus producer of staple foods (FANRPAN 2008). One of consulted stakeholders was of the view that the impact of the food price shocks was not felt by the majority of the households as they produce their own food and there were enough surpluses to be marketed. However, another stakeholder did mention that apart from the input subsidy program, the country also had favourable planting seasons as they had good rains during the two seasons that the programme was implemented.

Table 2: Maize surplus (deficit) over three different seasons

Year	National requirements (mt)	Production (mt)	Surplus (deficit) (mt)
2004	2 039 291	1 733 125	(306 166)
2005	2 115 317	1 259 332	(855 985)
2006	2 183 506	2 611 486	427 980
2007	2 255 049	3 444 655	1 189 606

Source: FANRPAN, 2008

Other achievements of the programme included the increase in the use of improved technologies (hybrid seeds, pesticides and inorganic fertilizers). In terms of soil preparation, an improved ploughing technology was introduced. This led to increased planting population. Traditionally, the ridges (rows) on which seeds are planted were 90 cm apart and this has now been reduced to 75 cm, and the planting distance between planting stations in a row has also been reduced to 25 cm. The improved planting technologies allowed farmers to plant more seeds per hectare and thus possible increases in yield per hectare. According to SOAS et al (2008) and Dorward et al (2008), the programme improved household food security as indicated by the subjective household economic well being. Rural households subjectively ranked their economic well being to be higher (8%) in 2007 than in 2004. In addition, the proportion of households that reported major shocks due to high food prices decreased from 79% in 2004 to 20% in May/June 2007. This was mainly due to increased household food production, higher rural wages and lower food prices benefiting the poorer households (Dorward et al. 2008).

The World Development Report 2008 (World Bank 2007), noted that agricultural production is important (while also noting the inherent challenges) for food security as it is a source of income for the majority of the rural poor, especially due to the highly variable nature of domestic production, limited tradability of food staples and foreign exchange constraints in terms of the ability to purchase imports. Therefore, increasing and stabilizing domestic production is essential for food security. In addition to the above, agriculture is a main source of livelihood for about 86% of rural people in SSA (ibid). Due to economic hardships in most African countries, subsistence production in some urban areas is increasing (Maxwell, 1994). The

prevalence of this practice in African urban areas ranges from about 33% to as much as 80% (Seti 2003 UNDP 1996), however the relative contribution of the practice to household food consumption is not very well documented (Maxwell 1994, Ruel et al. 1998 and Seti 2003), owing mainly to its neglect in agricultural development and/or smallholder research agenda (Maxwell 1994 von Braun et al. 1993). As in rural subsistence production, most of what is produced is used for home consumption (subsistence) and only a small proportion aimed for sale in urban markets. Urban agriculture has thus been recognised as an alternative food security strategy that can be used to cushion the urban poor against economic backlashes associated largely with structural adjustment policies (von Braun et al. 1993 Smit, Nasr and Ratta 1994). Maxwell (1994) argues that urban agriculture is a deliberate effort by urban households to ensure a more secure source of food that is not dependent on cash incomes or fluctuating markets. This is driven mainly by falling real wages, decreased opportunity for wage employment, as well as intra-household dynamics governing access to and control over resources; mainly cash. Urban farmers can be categorized, based on case studies in Uganda, into at least four groups (Maxwell 1994):

- Those who produce mainly for urban market
- Producing largely for home consumption and self-sufficiency rather than for the market
- Farming for food security, supplementing purchased food with subsistence production (purchase the majority of their food)
- Farming as the only means to access food

The most common group is farming for food security. This group comprises mostly of women who have access to some land on which they can produce food. However, the amount of food produced does not constitute the majority of what the household consumes. These households source most of their foodstuffs from the market. The women who farm for this purpose insist that they will continue to do so rather than seeking wage employment. For them food is a form of income that is less easily expropriated by other members of the household than is cash (Maxwell, 1994). Secondly, the women may access cash from informal businesses that rely on agricultural produce, especially the preparation of food for sale. Finally, farming is a task that falls well within women's multiple roles and responsibilities in the household. The food produced by this group is used mainly to supplement that purchased during those times of the year when seasonal crops are harvested. Another use is the storage of this food in case of emergencies which prevent the household from accessing other sources, such as a decrease in household income. The need for reserve usage of food stems from erratic and unreliable household income and more importantly for when the main income-earner is unable to provide money for food purchases. Therefore, producing some food for the household increases the food security of the household as well as releasing cash for other household uses. It reduces the over reliance on cash to access food and thus the demand for cash in feeding the household.

As pointed out above, the productivity of subsistence production will be greatly increased by the use of improved inputs and technologies (seeds, fertilisers, etc).

However, improved access to water and appropriate farmer support (through extension) would have positive and significant impact on improved yields for subsistence farmers. Low external input technology (LEIT) are seen as accessible to resource-poor households and thus can be the basis for human and capital formation (Tripp, 2006). But the patterns of use are similar to those purchased inputs as better-resourced farmers with better access to the markets are more likely to take advantage of technologies. This requires that for resource-poor households to take advantage of the technologies, complementary investments, especially in extension, need to be made. Another important innovation to improve access to LEIT would be the development of broad-based farmer organizations in order to stimulate a demand-driven approach to technology generation and information provision. The farmer organizations will be important in view of the huge short-comings with regards to agricultural extension that are rampant in most parts of SSA.

5. Constraints and opportunities for subsistence smallholder farming

While subsistence production has been shown to be important for household food security, the productivity of smallholder agricultural production is quite low and in some cases the reason for the abandonment of the agricultural production by both urban and rural households and reliance on non-farm sources of income. According to The Rockefeller Foundation (2006), this is a consequence mostly of the non-use of high-yielding crop varieties that are widely used in other parts of the world. As a result increasing yields mosly depends on increasing area cultivated. If better seeds and technologies could reach the farmers, the inefficiency and food shortages risk could be significantly reduced. However the challenges of bringing better seeds and fertilisers and technologies to the smallholder farmers is much more complex. The complexity arises from the diversity of climate, soils, and the range of suitable crops. Nonetheless, it is possible to deliver these improved inputs and assist farmers to use them more effectively (The Rockefeller Foundation, 2006). In addition there is a need to increase access to assets as household assets are the major determinants of their ability to participate in agricultural production, markets and to secure livelihoods through subsistence agriculture. The lack of assets for agricultural production is predominant in SSA as evidenced by unsustainably small and falling farm sizes; poor quality land; and investment in irrigation is negligible. In addition poor health services and education further limit productivity of agriculture and access to other livelihoods options. The World Bank (2007) proposes that commercial and subsistence smallholder farming can be made more productive and sustainable by, among others:

- Improving price incentives and increase the quality and quantity of public investment
- Making product markets work better
- Improving access to financial services and reduce risks
- Enhance the performance of producer organization
- Promoting innovation through science and technology

In view of the low productivity of agriculture in Africa, long-term food security in the continent can be improved by encouraging farmers to pursue sustainable intensification of production through the use of improved inputs (Smale et al 2009, Rockefeller Foundation, 2006, Southgate and Graham, 2006, Gill 2002, and Reardon et al 1996). This will require that dramatic increase in the use of fertilizer, organic inputs and conservation investments. However, well-functioning input and output markets need to be established as they will help farmers acquire and use improved inputs as well as market their produce (Dorward et al 2005). These will effectively reduce transaction costs and risks. Furthermore, well-functioning markets will ensure that the benefits of productivity are passed onto the consumers. Increasing productivity will reduce pressure on marginal lands as the intensification of cultivated land will reduce the need to expand production into fragile marginal lands (Reardon et al. 1996). In improving access to improved inputs, off-farm income is also important as it is used to purchase farm inputs and investment hence food security. Therefore, any proposed improved technologies should "not only be financially and economically profitable, but also attractive relative to alternative uses of household resources outside cropping" (ibid 1996:4). Finally, the promotion of improved inputs needs to be situated within household constraints since they have usually been promoted in ways that are not economically sustainable. As a result, the reduction of government support tended to discourage their use for it resulted in dramatic increases in costs and access to inputs. Therefore, governments have to start investing in understanding how to promote the cost effective use of improved inputs, such as fertilizer, animal traction, organic inputs, water, and soil conservation as these are the appropriate inputs required for sustainable intensification of agricultural production. There is a need to determine ways of indentifying cost effective means of increasing access to inputs, improving delivery thereof, and assisting farmers to earn cash to purchase the inputs.

6. Smallholder or subsistence/semi-subsistence agriculture and food security in South Africa

Until recently South Africa has been self-sufficient in food production, at least at the national level, but for a long time there has considerable levels of household food

insecurity. However, a national average proportion of households which are vulnerable to food insecurity and/or suffer from food poverty is still a question of debate[5]. The majority of the poor households are mostly concentrated in the rural areas especially those in the former homelands. Since the majority of the poor reside in rural areas it is possible that the food insecure are also in these areas. If this is the case it is expected that agriculture will play an important role in alleviating poverty as the rural development literature posits. As indicated earlier the problems of food insecurity could be addressed to some extent in rural areas through household subsistence production. While not discounting the importance of other agricultural sub-sectors, this section mainly deals with the importance of subsistence/semi-subsistence or smallholder agriculture in alleviating food insecurity in South Africa.

In South Africa, an estimated 4 million people engage in smallholder agriculture for several reasons and the majority of the people are in the former homeland areas[6]. The most common reason for engaging in agriculture is procuring 'an extra source of food' which as seen an expansion overtime at the expense of engaging in agriculture as a "main source of food" or purely for subsistence. In addition, the number of people engaged in agriculture as a main or extra source of income is small but consistent over time. However, the challenge is that there are no credible, long-term data on a national scale that establish trends in the subsistence/smallholder agricultural sector, which specifically illustrate the sub-sector's contribution to food security. Based on household survey data, black households with access to agricultural land reported that agriculture contributed 15% of the total household income, but for the poorest quintile the contribution stood at 35% (Aliber 2005). While the contribution of agriculture to household income is small, evidence from case studies indicate that agriculture in the former homelands is undergoing a decline. The commonly cited reason for this decline is the removal support that farmers in former homelands used to receive from the previous governments. An example is Thaba Nchu in the Free State, whereby with the removal of government subsidies, communal lands stopped being cultivated owing to farmers not being able to afford the farm inputs and a collapse of some of the institutions which used to "drive" agriculture during the homeland era (Kundhlande et al. 2003). Other reasons include the extension of the freedom of movement which has seen an increase in migration from the rural areas to the urban centres. The effects of increased access to social protection transfers on smallholder agriculture are still a matter of debate.

Even though subsistence agriculture is declining in rural areas, efforts have been put in place to improve its contribution especially for household food security. From the Labour Force Surveys between 2000 and 2004 (Aliber 2005), the proportion of households that practiced agriculture as a main source of food declined from 33% to

[5]Tim Hart (2009) discuses in detail the proportions of the food insecure in South Africa based on the different datasets used.

[6] Aliber 2009 offers a more detailed analysis of the participation in agriculture by black households in South Africa

6% whereas those who used it as an extra source of food increased from 54% to 88%. This may imply that rural "people are practicing agriculture less intensively as they find other more, remunerative, economic activities" (ibid 91).

However, government of South Africa places particular importance on subsistence agriculture in its efforts to fight food insecurity and poverty. One of the objectives of the IFSS (NDA 2002) is to improve household food production, trade and distribution. This is to be achieved through:

- the development of policy interventions that targets access to resources such as land, technology, credit and training;
- promotion of irrigation and rainwater harnessing technologies;
- improving access to credit by the poor, including women;
- improving access to food production and food processing technologies, particularly technologies for women;
- enhance the ownership and exchange entitlement of the poor in the trade of agriculture and food sectors;
- improve household food security by commercialising agriculture to increase income and employment generation among food insecure households

Several studies have been undertaken in South Africa to understand and/or address some of the issues raised around improving household food production (eg. Shackleton et al, 2001, Dovie et al. 2002, Hart and Vorster 2007, Seti 2003, Kundhlande et al. 2003, Baiphethi, 2004). The studies recognize the multiple and diversity of the livelihood base of rural households but, more significantly, they underscore the importance of land-based strategies of arable farming, livestock husbandry and consumption and trade in natural resources (eg indigenous vegetables) and further that the contribution of land-based activities is much greater than generally appreciated. Previous studies of household livelihoods overlooked the direct-use value derived by households from land-based strategies, including small stock; goods and services associated with livestock; produce from home gardens; wild or indigenous foods harvested from amongst staple crops; and the collection of natural resources for home consumption; etc (Shackleton et al. 2001). Even more important is the use of the land-based strategies as safety nets for households during times of need.

In study of direct-use value of smallholder crop production in Thorndale village in Limpopo, Dovie et al (2002) found that the net direct-use value of arable crops was estimated at $443.4 per annum across the village. Maize, watermelon, peanuts and common beans contributed 90% to the total direct-use value of crops. Marketing of the output was limited to mostly maize and peanuts and the farming was mainly by employing technologies that required low production inputs. Hart and Vorster (2007) also argue strongly for indigenous technologies and knowledge as their neglect may have a negative effect on the household food security of rural dwellers. Typically

government and donor project activities concentrate on the transfer of technologies centered on exotic crops, requiring large volumes of purchased inputs which are dependent on a well resourced natural resource base. Inputs are often hard to obtain. Furthermore, conventional production is characterized by high input costs which most poor households cannot afford, thus strengthening the case for indigenous and low input technologies. Existing and future research could build on these technologies enhancing their effectiveness where needed.

Seti (2003) found that food gardens are popular among African women's groups in South Africa. The main aim of food gardens among the respondents is to improve nutrition and create livelihoods for the urban poor. However, the study found that in Grahamstown East, only one in two households still grow vegetables in their food gardens, based on 1999 cross-sectional survey data, but previously the gardens were in abundance in the townships. The main constraints to cultivation were found to be the high start-up costs, drought, access to produce from the market, inadequate land for production, and the lack of fencing. These constraints are commonly cited by many communities in the former homeland areas as stifling both home gardening and cultivation of communal arable lands (Baiphethi 2004 Kundhlande et al. 2003). The implication is that most production has shifted towards conventional technologies, common among commercial producers who are able to access the inputs required much more easily than the small/subsistence farmer. The latter are generally situated in remote rural areas of the former homelands where there remains- despite government intervention in some instances-inadequate infrastructure and support services.

In response to some of the challenges faced by the small/subsistence farmers, there is consensus that appropriate technologies requiring low inputs would significantly improve the take up of subsistence production. Some of the technologies include rainwater harvesting and soil and water conservation practices, indigenous technologies and organic inputs. The technologies have been shown to increase yields significantly and reduce risks of crop failure (Botha et al. 2003 Baiphethi 2004). Furthermore, the uptake of farming by poor households will significantly reduce their dependence on purchasing food from the market and thus release some of the income for other household uses. However, this will require appropriate and targeted support to ensure the success of the efforts to improve subsistence production among the poor and food insecure.

7. Conclusions

The main sources of food for households are markets, subsistence production and transfers from the public programs or other households. However, with the decline in household subsistence production, partly as people took up non-farm livelihood

creation activities, accessing food from the market has grown significantly in some cases making 90% of all the food consumed by both rural and urban households, implying only 10% coming from the other two main sources (subsistence production and transfers). This has led to an increase in the proportion of household income spent food, for low-income households the proportion ranges between 60 and 80% in some countries whereas in South Africa, the proportion is relatively small at 37% of household income. Due to the dependence on the market for food, the ability to earn cash income and the prices of food are crucial for the achievement of household food security. Therefore, the efficiency of the marketing and distribution systems, household purchasing patterns, ability to produce own food, access to public transfers or private transfers are important factors affecting the cost of food for both rural and urban households.

In the backdrop of increasing prices of food, subsistence production is seen as important to attain household food security. This will reduce dependence on market purchases especially for the rural poor as they can exploit natural resources to provide food or generate income. Moreso rural households continue to value the pursuit of farming activities for home consumption. In South Africa the number of households engaging in agriculture as a main source of food is declining but there is a considerable increase in the number of households that engage in subsistence production to supplement market purchases. This further shows the important role that households attach to subsistence production as a source of food and thus reducing the pressure to generate income as they self-provide/supplement their food needs. It is thus important that households be assisted to increase their home/subsistence production to significantly reduce dependence on market purchases and more importantly mitigate against increasing food inflation. However the smallholder/subsistence agriculture's productivity is known to be very low and thus there is a need to significantly improve the productivity of the subsector if it is make significant impact on food security.

The low productivity of subsistence agriculture is largely as a result of poor access to productive resources and improved inputs. Therefore the productivity can be improved by increasing access to household assets such as land, water and human capital. In addition, the productivity can be improved by encouraging farmers to intensify production through the use of improved inputs. This includes the use of fertilizer, organic inputs and conservation investments. However, there is also a need to develop and/or improve input and output markets so as to reduce risks and transaction costs.

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Tania Fraser /Hsrc
2009/05/15 02:39 PM

To Hanlie Rossinger/Hsrc@HSRC
cc
bcc
Subject New Client report 2008/09-Recycling-Lowitt

Dear Hanlie,

A new client report, still confidential - to be included in council report

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