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**PRIVATE SECTOR**

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**PARTICIPATION IN DELIVERING AGRICULTURAL SERVICES TO  
SMALLHOLDER FARMERS IN TANZANIA: THE  
CASE OF AGRICULTURAL INPUTS IN HAI DISTRICT,  
KILIMANJARO REGION**

**BY**

**ANTHONY EMMANUEL KISSINGA**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE  
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## **ABSTRACT**

The average intensity of fertilizer use throughout Sub-Saharan Africa (SSA) remains much lower than elsewhere and has been virtually stagnant during the past decade. Farmers' failure to intensify agricultural production in a manner that maintains soil productivity is viewed as a key cause of decline in soil quality in many rural areas in SSA. There is general agreement that the improvements in soil fertility needed to stimulate agricultural productivity growth, improved food security, and increases in rural incomes will require substantial increases in fertilizer use in combination with improved land husbandry practices. Under economic policy reforms in agriculture, the private sector in Tanzania through input delivery services was expected to create incentives for farmers to adopt new farming methods. However, the response from the private sector was and still slow. The study aimed at determining the contributing factors to low participation of the private sector in delivering agricultural inputs to farmers. Limiting availability and accessibility of inputs by the majority of farmers was found to be one of the factors. The second factor was found to be the small market of agricultural inputs associated with poor quality of extension services offered to farmers. The third factor was low awareness of stakeholders on the benefits and consequences of implementing the privatization policy. The last factor was the introduction of subsidy programme which according to this study hindered the emergence and effective operation of the private sector. Several recommendations were given to encourage the private sector. These include: improvement of rural infrastructure; building the capacity of local inputs retailers through training, and trade finance; designing conducive and stable system of distributing subsidized inputs to poor farmers without undermining the profitability of inputs retailers; maintaining efficiency and quality of inputs distributed to farmers by formulating and enforcing regulations; and reducing the long marketing channels of inputs distribution which contribute to high costs of inputs.

## DECLARATION

I, ANTHONY EMMANUEL KISSINGA, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work, and has not been submitted for a higher degree in any other University.

Anthony Emmanuel Kissinga

Date

M.A. (Rural Development)

The above declaration is confirmed

Professor Matee A.Z.

Date

(Supervisor)



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“May the Almighty God rest the soul of my late father in eternal peace, Amen”

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background information**

In Sub-Saharan Africa, agriculture is the dominant sector in most of the countries. It provides employment to most of the people in rural areas and makes significant contributions to the gross domestic product (GDP) and foreign exchange earnings. Because of its dominant role in the economies and societies of African countries, agriculture has been called the engine of economic growth. In spite of its dominant role, agricultural productivity is low and the people depending on agriculture are generally poor. Increased productivity in the agricultural sector mandates that African farmers move from the traditional mode of agricultural production to one based on science and technology. Science-based agriculture is embodied in the use of modern inputs such as improved seed, fertilizers, crop protection products, and other improved agronomic practices (Gregory and Bomb, 2006).

In Tanzania, the Agricultural sector provides jobs, sustenance and income to 4 858 810 rural households growing crops. This number represents 99% of the total number of farming households in the rural areas and 95% of the total rural households. The total land area allocated to smallholders either through formal titles or customary rights is 11 999 071 ha (2.1 ha per household). Of this, every household uses 2.0 ha, however there are large regional variations with Shinyanga utilizing around 3.4 ha per household and Kilimanjaro with only 1 ha per household. The total land area allocated to smallholders has not changed over the last 10 years (12 227 840 ha in 1994), however the area of land

utilized per household has increased by 186 % and the area of land utilization is almost the same as the area of allocated land. About 50% of households reported insufficiency of land (URT, 2006).

## **1.2 Inputs use in agricultural development**

Eric (2006), reported that in spite of the importance of agriculture in Sub-Saharan Africa (SSA), farmers in this area still lag far behind other developing areas in fertilizer use. The average intensity of fertilizer use throughout SSA (roughly 9 kilograms per hectare) remains much lower than elsewhere (e.g. 86 kg/ha in Latin America, 104 kg/ha in South Asia, and 142 kg/ha in Southeast Asia, averaged over the 2000/2001 and 2002/2003 years).

Since the 1980s, fertilizer use in Sub-Saharan Africa (excluding South Africa) has risen by only 17%, from 1.09 million tons in the 1980–1989 period to 1.26 million tons in the 1996–2000 period. Over the same period, fertilizer use intensity, defined as kilograms of fertilizer consumed per hectare of cultivated land, rose by only 5%. Why are fertilizer use rates so low in Africa? Kherallah *et al.* (2002), give the following reasons:

- Fertilizer costs in Africa are higher than in Latin America and Asia;
- Africa has a much lower proportion of irrigated land than in other continents;
- African farmers rely more on traditional crop varieties that are less responsive to fertilizers than in Asia and Latin America where modern varieties of wheat and rice are highly responsive to fertilizer;
- Most areas of Africa have relatively low population density, providing less incentive to invest in land-saving technology.

Temu *at el.* (2000), reported that Tanzania's agriculture is still characterised by low input use. By the year 2001, fertilizer use was estimated at 60-70 tons per year for the whole country. Pesticides imports have fallen by about 40% from the mid 1980s' level and the seed industry has stagnated at 5 to 7 tons per year, with major changes in suppliers. It was reported that only 18% of Tanzanian farmers use pesticides, 27 % use improved seeds, and 15% use chemical fertilizer. These very low rates vary disproportionately across crops and regions. For example, 70% of pesticides are for coffee and cotton crops alone. Input use is lowest in remote areas (FAO, 2001) where smallholder farmers do not grow major cash crops. FAO (2001), reports that fertilizer; chemicals and improved seed are largely unavailable in these areas. In areas where they are available, farmers who used to receive subsidized inputs from cooperatives and state channels are reluctant to purchase them from commercial, profit oriented traders. Also in these areas, there is no functioning regulatory system capable of controlling unauthorized vendors and stockists from selling poor quality chemicals sold in unmarked packaging, often adulterated or past expiry date.

Tanzania has low yields mainly because of its extremely low inorganic fertilizer use. To achieve yield gains needed to meet food requirements of the rapidly growing population, Tanzania must significantly increase its current low levels of inorganic fertilizer use and intensify its production systems.

### **1.3 Privatization for agricultural input supply**

Adesina (2001), reported that beginning in the late 1980s, 40 of the 47 African countries implemented Economic Policy Reforms in Agriculture. In many countries, governments implemented a mix of public investment and policies to encourage private sector development and new forms of public-private-nongovernmental organizations (NGOs)



partnerships in order to speed up technological change. By the early to mid 1990s, many state owned enterprises in the agricultural sector in Africa withdrew from marketing and investment activities or were no longer in a monopolistic position. The private sector was allowed to participate in the marketing of inputs and outputs. It was expected that the private sector participation in inputs delivery services could create incentives for farmers to adopt new farming methods. However, the response from the private sector was slow. According to Gregory and Bomb (2006), this slow response from the private sector may wrongly convince policy makers and donors to move back to the public sector monopoly in input distribution. Such a move would be premature because it would divert the attention away from removing structural constraints to private-sector participation.

#### **1.4 Problem statement**

It is well understood that intensification of smallholder agriculture is critical to future economic development in most of Sub-Saharan Africa (SSA). There is a widespread view, however, that smallholders' use of agricultural inputs, notably fertilizer, has declined somewhat following the implementation of structural adjustment and agricultural reform programs in the 1990s. Although there has been a marked increase in the number of private firms involved in the marketing of agricultural inputs, these emerging inputs markets remain underdeveloped and fragmented, and access to inputs is a challenge for smallholder farmers in rural areas (Gregory and Bomb, 2006).

Valerie (2006), reported that although in some countries, such as Kenya, there are more than 3,000 inputs dealers, in many other countries (Malawi, Zambia, Nigeria, Uganda, Ethiopia, and Madagascar), the number of dealers serving the farming population is limited. In Uganda, there were less than 100 inputs dealers in the country and few in the

rural areas in 2001. Even in Tanzania, there were only 500 inputs dealers in 2003. Moreover, many of these dealers are concentrated in urban or semi-urban areas. Therefore, there is a scarcity of dealers in the rural interior near smallholder farms. As a result, farmers must travel 20–30 km to purchase fertilizer, seeds, and other inputs. This raises the cost of inputs to farmers, either limiting the quantities they can afford to purchase or rendering them unable to purchase any inputs at all.

Although the agricultural sector in Tanzania has improved dramatically since the implementation of agricultural reforms, the private sector has not filled the entire gap left by the withdrawal of government in delivering agricultural support services to farmers. Agricultural inputs have not been delivered neither efficiently nor in good quality. In general terms, correct agricultural policies have been put in place but implementation leaves broad gaps. This causes high transaction costs, keeping the promised benefits from reaching the majority of rural people MOA (1992).

Hai District in Kilimanjaro Region is among the Districts in Tanzania where the private sector failed to fulfil the expected benefits of the agricultural sector reforms in Tanzania. According to the District Agriculture and Livestock Development Officer (DALDO), there is low participation of the private sector in delivering agricultural inputs to smallholder farmers in Hai District. This causes poor crop production and land productivity leading to food insecurity and income poverty within the area. For example, there are only 18 registered inputs shops in the district with 85 villages and for more than 58 000 farm families. Out of the 18 shops, 16 (88.9%) are located in the district urban centers and only 2 (11%) are located in rural remote villages. The majority of smallholder farmers in remote areas have to travel an average of 20 and 40 km to procure inputs in town centers. Distant farmers and villages with poor roads and transport are difficult to reach.

Low participation of the private sector in delivering agricultural inputs to smallholder farmers has contributed to poor availability, accessibility, and high prices of agricultural inputs to the majority of farmers. This has led to poor crop production and productivity which resulted in food insecurity and persistence of income poverty among smallholder farmers in the District.

So far, it is not well understood as to why the private sector in Tanzania and Hai district in particular has not been able to participate effectively in delivering agricultural inputs to smallholder farmers since the privatization of input supply services. Having realized the importance of the private sector in Tanzania and its contribution to economic development, it is therefore imperative to study the reason for this low response. This study therefore focused on finding out the contributing factors for low participation of the private sector in delivering agricultural inputs to smallholder farmers in Hai District, Kilimanjaro Region in Northern Tanzania.

### **1.5 Justification**

Temu *et al.* (2000), reported that, despite a rich endowment of natural resources, good climate and abundant land, Tanzania's agricultural performance is unsatisfactory. Agricultural incomes, food security and livelihoods, did not respond to the 1980s reforms at levels expected earlier. Together with other factors, agriculture also faces a growing soil productivity crisis due to low use of agricultural inputs. Low input use associated with low participation of the private sector in delivering agricultural inputs to farmers contributes to Tanzania lagging behind in agricultural productivity growth and to the related decline in food production per capita.

URT (2004), reported that, over the past decade, agriculture has been growing at a rate of about 3.5% per year, a rate slightly higher than the population growth rate of 2.8% per annum, with annual variations dependent on the weather. Today the Agricultural Sector Development Strategy (ASDS) emphasizes a sector growth rate of 11% by the 2015. This target can only be achieved through the use of improved agricultural technologies by farmers. Availability and accessibility of agricultural inputs is of great importance on the side of farmers to achieve this target. The availability and accessibility of agricultural inputs to farmers highly depend on effective participation of the private sector in the procurement and distribution of these inputs to farmers. For the private sector to participate effectively, a thorough understanding of the reasons for their low participation is imperative.

The lessons and experiences obtained from this study therefore, will contribute in providing recommendations to the policy makers and the Ministry of Agriculture, Food and Cooperatives (MAFC) in order to be able to formulate and design effective policies and strategies which will encourage effective participation of the private sector in delivering agricultural inputs to smallholder farmers.

#### **1.4 Research questions**

- i. Do the characteristics of inputs businesses, inputs traders, farmers and extension workers, contribute to low participation of private sector in delivering agricultural inputs to farmers?

- ii. What efforts have been tried to build the capacity of input traders and to provide them with technical knowledge and financial assistance needed for efficient and quality input distribution services?
- iii. Are the stakeholders (input traders, extension workers and farmers) being involved in the processes of privatizing input delivery services by the government? If not does this influence the participation of the private sector in delivering inputs to farmers?
- iv. Do government interventions in marketing of agricultural inputs e.g. reintroduction of subsidies in 2003 have any influence in the participation of private sector in delivering inputs to farmers?
- v. Is there any regulatory system which guides the procurement and distribution of inputs and which protects farmers and traders against unscrupulous inputs dealers?

## **1.5 Objectives of the study**

To determine factors contributing to low participation of the private sector in delivering agricultural inputs to smallholder farmers in Hai District, Kilimanjaro Region in the Northern Zone of Tanzania.

### **1.5.1 Specific objectives**

- i. To examine the general characteristics of inputs businesses, traders, farmers, and extension workers with respect to input procurement and distribution.

- ii. To assess the involvement of key stakeholders' (input traders, extension workers and farmers) in the processes of privatizing inputs supply services;
- iii. To determine the effect obtained by the private sector as a result of reintroduction of subsidies on agricultural inputs by the government.
- iv. To find out if there are regulations which ensure efficient and quality distribution of inputs and which protect input traders and farmers against unscrupulous input dealers

## CHAPTER TWO

### LITERATURE REVIEW

#### **2.1 The historical perspectives of the agricultural sector reform**

Crawford *et al.* (2006), reported that the agricultural market reforms promoted by the World Bank and the International Monetary Fund were expected to reduce the bias against agriculture that was evident in many African economies and open the sector to market forces. In countries where agricultural exports were taxed and domestic food crop prices were kept artificially low to protect urban consumers, it was believed that the combined effects of (a) inputs market reforms (the removal of regulatory restrictions such as licensing requirements and pan territorial prices that discouraged private investment, the end of expensive subsidies, and the elimination of state-owned fertilizer enterprises or their transformation into viable commercial actors), (b) output market liberalization, leading to more efficient and better integrated markets, and (c) subsidy removal, could result in lower consumer prices and higher, more stable farm gate prices. This fortuitous set of events was expected to reduce price risks associated with fertilizer use, increase fertilizer profitability, increase fertilizer demand for use on high value and/or fertilizer responsive crops, and decrease demand for use on non-responsive, low-value crops.

According to Kherallah *et al.* (2002), the pre-reform period in the 1970s and early 1980s was characterized by six types of fertilizer promotion programmes or interventions as follows: Controlled State Inputs Distribution Programmes; Targeted Government Inputs Distribution Programmes Within an Open Market Environment; Sasakawa-Global-2000 Programmes; outgrower or Cooperative programs with Interlinked Input-Credit-Output

Market Transactions; Public Sector Facilitation of Private Sector Fertilizer Supply; and Starter Pack Programmes.

### **2.1.1 Controlled state input distribution programmes**

The basic feature of this model is a controlled system of input and output marketing in which the state distributes fertilizer and other inputs (often on credit) to farmers and recoups the input loan at harvest time when the farmers sell crops to the state or its agents. Seasonal finance, inputs delivery and sale of output are interlinked through state control of the input and output markets. Generally, input subsidies are applied broadly to reduce the market price of fertilizer without attempting to target subsidies to specific groups. Variants of this basic system were implemented in much of Asia during its “green revolution” phase; and by African countries such as Kenya, Tanzania, Malawi, Zimbabwe, and Zambia in the 1980s until the introduction of structural adjustment policies. The empirical record of these programs in Africa is described in Donovan (1996); Kherallah *et al.* (2002); and Jayne and Stephen (1997). Fertilizer subsidies were an important feature of this model except in the case of Kenya.

*Pros:* In many African cases, and for brief periods of time, this system successfully increased fertilizer use and food output by farmers, especially in more remote areas where fertilizer use was otherwise unprofitable. Multiplier effects from broad-based farm income can help initiate structural transformation processes as long as the system can be financially sustained.

*Cons:* Past experience indicates that these systems are difficult to sustain. The subsidies involved in stimulating fertilizer use (both through broadly applied fertilizer subsidies, output market price support, and non-repayment of credit, which effectively subsidizes



fertilizer more so than official price levels would indicate) can create fiscal pressures, macroeconomic effects, and the potential breakdown of the system. Inefficiencies in government operations can induce farmers to side-sell farm output to parallel markets, thus exacerbating marketing boards' operating losses and causing greater difficulties in recovering input loans. Unless external financing is available to underwrite these operations, these systems have been difficult to sustain over time. These problems were endemic in most Sub-Saharan African countries that attempted to implement this model of fertilizer promotion and were mostly discontinued in the face of fiscal crises.

### **2.1.2 Targeted government input distribution programmes within an open market environment**

This approach attempts to define a more truncated and financially sustainable role for public sector fertilizer distribution, by targeting input subsidies to selected farmers, while allowing the private sector to freely distribute inputs on commercial terms. State distribution programs may attempt to target farmers lacking the income to purchase fertilizer at market prices, while the private sector reaches farmers with commercial demand. This approach has been pursued in countries such as Zambia, Nigeria, and Zimbabwe during the 1990s to the present. *Pros:* If input subsidies can be effectively targeted to farmers lacking effective demand, this approach can raise overall fertilizer use and potentially contribute to both productivity and poverty alleviation objectives.

*Cons:* In practice, targeted government input distribution programs in Africa have generally been unable to effectively channel fertilizer subsidies to relatively low-income farmers (Govereh *et al.*, 2002; Kherallah *et al.* 2002). To the extent that subsidies are captured disproportionately by relatively influential and high-income farmers, the

objectives of poverty alleviation and productivity growth for relatively disadvantaged farmers are compromised. Moreover, to the extent that subsidized fertilizer is acquired by farmers with effective demand who otherwise would have purchased fertilizer from the market, the operation of government input distribution programmes can erode the commercial demand for fertilizer that is necessary to develop well functioning private input delivery systems (Govere *et al.* 2002).

### **2.1.3 Sasakawa-global-2000 programmes**

In the 1990s, the Sasakawa-Global 2000 Programme (SG-2000) initiated a series of joint programmes with African governments to demonstrate that substantial productivity increases could be achieved when farmers were given appropriate extension messages and agricultural inputs were delivered on time at reasonable prices. Pilot programmes were set up, typically in relatively productive areas, to provide credit, inputs, and extension assistance to participants willing to establish half-hectare demonstration plots on their own land. After several years, participating farmers “graduate” from the programme and are expected to continue using the productivity-enhancing technical package on their own. Over time, other farmers learn from the participating farmers, adopt their inputs use and management practices, and the technology diffusion process takes off. SG-2000 programmes were implemented in a number of countries during the 1990s, including Ethiopia, Mozambique, Uganda, and Ghana.

*Pros:* Assessments by Howard *et al.* (1999; 2000), in Ethiopia and Mozambique indicate that farmers could significantly increase maize yields through the application of the recommended improved seed and fertilizer package, if inputs are delivered on time and crop management recommendations are followed. The input/management practices were

found to be financially profitable in most of the agro-ecologically suitable areas of Ethiopia where pilot programmes were initiated and evaluated. In these areas of Ethiopia, the increase in fertilizer use has been largely sustained through continued input distribution programmes coordinated by the state but ostensibly implemented by private holding companies (Jayne *et al*,2003). The Mozambique evaluation provided a more mixed picture of financial profitability of the high-input fertilizer package, where only one of the three sites evaluated showed that the high-input technology was superior to alternative low fertilizer technical packages (Howard *at el*, 2000).

*Cons:* The main challenge of the SG-2000 programmes has been how to sustain the progress made by farmers after they “graduate” from the programme. Specifically, because the SG-2000 programmes provided the package of fertilizer and improved seed on credit, and sometimes reduced farmers’ output price risk by providing a floor price for crop sales, it became evident that the programmes’ ability to sustain the momentum depended on the development of viable and sustainable input distribution systems, output marketing systems, and financial systems that provide the services to farmers that the implementing agency provided during the initial “pilot phase.” After experiencing impressive yield gains during the pilot period, farmers in most areas reverted back to old low-input practices because the “second generation” investments in input, crop and finance marketing were not in place, sometimes because the high-input technology was not financially profitable and hence did not generate effective demand for the input package.

#### **2.1.4 Outgrower or cooperative programmes with interlinked input-credit-output market transactions**

In this model, an outgrower company or cooperative links together seasonal finance, inputs delivery and output marketing, similar to the controlled government programmes (Dorward *et al.* 1998). Farmers apply to become members of the outgrower company; membership makes them eligible to receive inputs on credit, farm management advice, and an assured output market for particular cash crops. In return, farmers agree to grow the particular cash crop in accordance with advised management practices, and sell the commodity to the outgrower company. Examples of this model are the coffee cooperatives and sugar outgrower schemes in Kenya, and the integrated cotton outgrower arrangements in Zambia, Mozambique, and Zimbabwe.

*Pros:* Interlinked market transactions can improve coordination and reduce risks, just as an effective state-led input-credit-output market system can. The main difference is that the outgrower company is run on commercial terms, less prone to political interference, and there is little or no subsidization of inputs. This can be done while still providing incentives for farmers to stay in the system because these schemes are generally sited in areas where the cash crop is productive and is a financially viable proposition for most farmers. This helps maintain the sustainability of the operation for both farmers and the outgrower company. Also, there are documented cases of spillover effects, whereby the cash crop scheme can facilitate increased input use on food crops for participating farmers (Dione, 1989).

*Cons:* The sustainability of this system requires that the outgrower company represents farmers and their interests. Where outgrower companies' or cooperatives' boards of

directors have reflected interests other than farmers, management and operating cost structures can become uncompetitive and erode incentives for farmers to remain in the scheme. Some coffee cooperatives and sugar companies in Kenya have faced this problem. The outgrower arrangement also requires that the output market is effectively controlled by the firm, so that farmers do not side-sell their commodity and cause problems of credit non-repayment. Competition between firms has in some cases exacerbated credit repayment problems for outgrower companies providing inputs to their farmers on loan, which has in some cases led to outgrower companies exiting the market (Govere *et al.*, 2000; Tschirley *et al.*, 2004).

#### **2.1.5 Public sector facilitation of private sector fertilizer supply**

This approach to fertilizer promotion features a public goods investment approach to supporting private sector entry and investment in the fertilizer sector. The general strategy is to improve the demand for inputs by farmers and the incentives for private companies to serve farmers' needs by engaging in activities that reduce the costs of agricultural production and marketing, (e.g., investing in roads, port facilities, and other forms of market infrastructure, improving agricultural production and marketing extension services, investing in more fertilizer-responsive seed varieties, and supporting a conducive banking system for financing large-scale transactions). This approach has to a large extent been pursued in Kenya since the government reformed its fertilizer marketing system in 1993. By 1993, prices were decontrolled, donor imports dwindled to 5 percent of total consumption, and small-scale farmers relied almost exclusively on the private sector and cooperatives for fertilizer. In a number of other African countries, governments have ostensibly liberalized their fertilizer markets, but have continued to run government input distribution programmes that reduce the size of the market for private firms, and/or invest very little in public goods designed to facilitate investment in the fertilizer sector.

*Pros:* There appears to be great variability in outcomes associated with this model, which may be related to inability to control for differences in implementation within the set of countries adopting this general approach. In the case of Kenya, there appears to have been a very rapid private sector response. Allgood and Kilungo (1996), reported that by 1996 there were 12 major importers, 500 wholesalers, and roughly 5,000 retailers distributing fertilizer in Kenya. IFDC (2001), estimated that the number of retailers rose to between 7,000 and 8,000 by the year 2000. Some of the largest importers were cooperatives and estate firms supplying their members, most of whom were small-scale farmers participating in tea, coffee, and sugarcane outgrower schemes. Several studies indicate that the market is generally competitive, particularly at the retail level (Omamo and Mose 2001; Wanzala and Jayne, 2002). Fertilizer consumption has increased substantially, rising from roughly 230,000 tons in the early 1990s to over 350,000 tons since the 2001–2002 seasons.

*Cons:* The system relies on the ability of the public sector to invest in a range of cost-reducing public goods, which are very expensive and most likely require major donor support for a number of years. Most farmers in the drier and less fertile parts of the country cannot use fertilizer profitably and must rely on other sectors such as livestock and non-farm employment as engines of growth, or other forms of assistance. A well-functioning banking system for financing fertilizer purchases must also be in place.

### **2.1.6 Starter pack programmes**

The “Starter Pack” programme and its successor, the “Targeted Inputs Programme” (TIP) have been implemented by the Government of Malawi with financial assistance from

numerous donors since the 1998–1999 seasons. In its initial years of operation, the program provided almost every rural smallholder household with a free “pack” consisting of 15 kgs of fertilizer, 2 kgs of hybrid maize seed, and 1kg of legume seed. The inputs were sufficient for cultivation of 0.1 hectares according to extension recommendations (Oygaard *et al.* 2003). The Starter Pack programme was intended to meet several objectives: increasing maize yields and food security, countering soil nutrient depletion, and making a new line of fertilizer-responsive semi-flint hybrids available to small farmers who otherwise might not take the risk to experiment with them. The Starter Pack programme was originally conceived as a technology-based plan that was cheaper than importing maize, but in later years it and its successor TIP programme have doubled as a relief effort. The programme demonstrated the government’s efforts to “do something” to help rural households and Levy (2003), concludes that the programme contributed to the re-election of President Bakili Muzulu in 1999 as cited in Oygaard *et al.* (2003).

*Pros:* During its initial years when every household nationwide was a recipient, the Starter Pack programme was clearly able to put improved technology in the hands of poor farmers who otherwise would not have been able to afford these inputs. Consequently, and at least for the several years while the programme operated at this scale, rural households’ food security and income position was improved (Cromwell *et al.*, 2001; Levy and Barahona, 2002; Oygaard *et al.*, 2003). Fertilizer importers appreciated the programme because it purchased fertilizer from established importers rather than using independent channels for importing the programme fertilizer.

*Cons:* Levy and Barahona (2002), aptly describe the Starter Pack programme as neither a safety net program (according to their strict definition) nor a longer term development programme. It is something in between a stop gap, imposing high financial opportunity

costs in terms of foregone investments in infrastructure, extension, and market development that could drive down the costs of input and output marketing, and thus contribute to long-run fertilizer use. After the programme was scaled down to reduce the financial burden during the TIP phase, the programmes' expenditures were poorly targeted to relatively poor households, although this was a key objective (Mann, 2003). The TIP experience points out a more generalized point about the extreme difficulties of targeting fertilizer subsidies with the local and national political economy contexts found in much of Sub-Saharan Africa.

## **2.2 Agricultural sector reform in Tanzania**

URT (2003), reported that, prior to 1985, agricultural policy was characterised by government controls through Parastatals, Cooperatives and other government-supported institutions to deliver agricultural services and, to some extent, direct production of commodities. In 1986, the government embarked on agricultural policy reforms as part of the economic structural adjustment programme (SAP). The main focus of the policy reforms was to liberalise the agricultural sector and to promote private sector development and participation in the production and distribution of agricultural goods and services. Agricultural policy endeavoured to create an enabling environment for private sector participation through measures such as withdrawal of direct government involvement in production, marketing and distribution of inputs and produce, privatization of parastatal companies, elimination of price controls and direct subsidies in the sector.

Under the new environment most of the production, processing and marketing functions have been assigned to the private sector while the government has retained regulatory and public support functions. These macro changes have and continue to have profound impact on the agricultural sector in which, already agricultural input and output prices have been



decontrolled, subsidies have been removed, and monopolies of cooperative and marketing boards have been eliminated.

### **2.2.1 Challenges in reforming interlinked input-output-credit markets**

URT (2003), reported that the 1994 liberalization of the Tanzanian coffee sector resulted in heavy losses for cooperative unions and the Tanzanian Coffee Marketing Board (almost US\$7 million) because producers sold their coffee to emerging private sector coffee buyers offering higher prices. Consequently, only 15 % of farmers had access to input credit from 1995 through 1997, in sharp contrast to the pre-liberalization situation where all farmers had access. However, a cost-benefit calculation of the net impact of reduced access to finance and increased output prices suggests that only 15 percent of farmers were worse off post-liberalization.

## **2.3 Private sector participation in agriculture**

### **2.3.1 Meaning of the private sector**

According to URT (2004a), the private sector is the individuals' run part of the economy. The private sector consists not only of various entrepreneurs and traders but also farmers, fishers and livestock keepers. It is dominated by privately owned business companies and corporations. There are many actors in the private sector, falling under different categories, each with specific responsibilities and roles to play. These include: the contract farmers; the agro-processing firms; major traders/ exporters/ importers; and the private commercial banks such as CRDB Bank. At the lower level all the private sector includes: small scale farmers and the micro-enterprises including private stockists, traders, transporters, produce buyers, and businessmen/women.

### **2.3.2 The role of rural stockists**

Rural stockists stand at the interface between supply and demand as well as making products available close to farmers. This is critical, as some farmers have to walk 30–40km to obtain fertilizer where no stockist network exists. Stockists can play an important role in stimulating demand through the provision of information and advice to farmers. They may also become a source of input credit to farmers whom they know. However, one should not expect them to be the primary “drivers” of increased fertilizer use. Their limited capital bases do not permit them to proactively promote fertilizer use far beyond the threshold of their premises, nor to experimentally stock new fertilizer products for which there is not already clearly established demand among local producers. Rather, they should be important partners in efforts (principally from public research, extension agencies, and NGOs) to stimulate demand for fertilizer and as important conduits for the supply response (principally from private importers, manufacturers, and wholesalers). In order to encourage their development. They need to be trained in both marketing/business and technical skills. Some stockists have a background in research or extension and have moved into business because they have an entrepreneurial streak. Nevertheless, they lack a grounding in business and marketing. Others are general traders who have moved into selling agricultural inputs and lack the technical knowledge to provide informed advice to customers. It is also important for stockists to build linkages within the supply chain, so as to qualify for supplier’s credit. The training mentioned above is often a pre-requisite for this, while third party guarantees (as employed in Zimbabwe and now in Kenya and Malawi) may be required while the relationship with a supplier is being built (Gregory and Bomb, 2006).

### **2.3.3 The impact of the private sector in agricultural development**

The private sector participation in the marketing of agricultural products has increased the number of channels through which agricultural producers can sell their products. However, private sector participation is biased in favour of urban areas and areas with good road infrastructure. Private traders operate in those areas where they can easily collect and transport agricultural products to consumers (URT, 2003).

In recognition of the important role towards creating an enabling environment for private sector development, the Government has been implementing wide ranging institutional and policy reforms. It has liberalised its economy; amended and enacted a number of investment related laws and policies, undertaken financial reforms, liberalised its trading regime; put in place an attractive investment package and undertook a number of initiatives to promote and develop the private sector. In supporting the complementary and supplementary role of the private sector in accelerating socio-economic development, the Government has developed modalities for institutionalising the then ad-hoc consultative process with the private sector in evolving appropriate and effective macro and sectoral policies. (e.g. through participation in the Government Tax Task Force and the Public Expenditure Review working groups).

Similarly, the private sector itself has evolved institutional mechanisms of interactions and consultations with the Government through umbrella organisations such as the Tanzania Chamber of Commerce Industry and Agriculture (TCCIA), Confederation of Tanzania Industries (CTI), Tanzania Chamber of Agriculture and Livestock (TCAL), the

Tanzania Private Sector Foundation (TPSF) and the Tanzania National Business Council (TNBC).

According to Kashuliza and Mbiha (1995), pitfalls of privatization include input distributors who, because of being profit oriented, market their products only where there is infrastructure accessibility; low prices for the crops; removal of some subsidies on credit resulting into high rates therefore few better-off farmers get access to inputs , market information and other extension services.

According to Umali and Schwartz (1994), private enterprises will supply a particular extension service if the firm (directly or indirectly) can capture reasonable returns. Input suppliers will provide complimentary extension as part of the technology sale to promote products, ensure the products proper use and preserve the firm's market share. Agro processing and marketing firms will provide extension services to reduce agricultural inputs risks. They frequently rely on contract farming or outgrower's schemes that generally introduce new technology or techniques to farmers.

## **2.4 The role of the government**

According to IFDC (2003), key aspects of an enabling policy environment for private sector fertilizer supply include: maintenance of macroeconomic stability; avoiding free distribution of inputs or food aid, except in cases of extreme emergency; maintenance of a predictable policy stance towards the fertilizer industry. There is also a key role for government in upgrading infrastructure (i.e., roads, ports) and there may also be a role in assisting importers gain access to finance so as to benefit from economies of scale in importation. Fertilizer use is assisted where producers also gain access to complementary

services (e.g., technical advice, access to improved seed varieties, credit, and attractive output marketing opportunities). Efforts to increase fertilizer use need to be embedded within wider strategies for smallholder agricultural development. They should be an integral part of such strategies, not just at national level, but also within their local-level outworking (e.g., district level agricultural or rural development plans). Promoting farmers' organizations is important if farmers are to access the range of goods and services (including fertilizer) that they require for production intensification.

## **2.5 Subsidies on agricultural inputs**

Gregory and Bomb (2006), reported that African countries have made substantial progress in liberalizing and deregulating their input markets although pockets of interventions and unpredictable involvement by government or donor agencies still exist. For example, in Nigeria, the Federal Government continues to provide a subsidy to a small segment of the farming population, and the Government of Zambia plays a key role in distributing fertilizers to targeted farmers. In Malawi both government and donors become involved in the free or subsidized distribution of inputs—seeds and fertilizers. Nevertheless, the role of crop marketing boards and other state-owned entities in the marketing and distribution of fertilizers has been eliminated or reduced, and the private sector has been allowed to import and market fertilizers at all levels of the supply chain—import, wholesale, and retail. It was anticipated that these policy reforms would encourage the development of well-functioning fertilizer markets and increase agricultural intensification, particularly among smallholder farmers growing food crops. Through liberalization and privatization efforts, many countries have removed price and marketing controls and the private sector has made significant inroads. However, there is a lingering fear in the minds of policy makers that the private sector is not capable of supplying inputs in a cost-effective manner,

and therefore, the government should intervene directly in the marketplace. In 2003, the Government of Tanzania announced that it would supply subsidized fertilizers to selected areas in the country. In 1999, the Government of Nigeria announced a 25% subsidy on all fertilizers and forced the private sector to deliver fertilizers at the local government depot. Payments for such deliveries were not made promptly, and as a result, the private sector reduced imports for the next year.

According to (Valerie, 2006), fertilizers and improved seeds are largely unavailable in remote areas. In areas where they are available, farmers who used to receive subsidized inputs from cooperatives and state channels are reluctant to purchase them from commercial, profit oriented traders. Also in these areas, there is no functioning regulatory system capable of controlling unauthorized vendors and stockists from selling poor quality chemicals sold in unmarked packaging, often adulterated or past expiry dates.

It was reported that, the lower price of fertilizer may increase its affordability for cash constrained farmers (aside from its impact on profitability). In other words, subsidies may have a demand-side impact, even though they are essentially a supply-side intervention. However, a subsidized 50kg bag of fertilizer may still be less affordable to many poor producers than (unsubsidized) 1kg or 5kg packs. Poor farmers are generally held to be risk averse, but evidence suggests that they will invest in fertilizer when the benefits are clear.

Subsidies can enhance the affordability of fertilizer, but small packs or investments in seasonal credit supply may be better approaches. Although poor farmers currently rarely access fertilizers, many of the benefits of subsidies (being supply-side instruments) are captured by those who already have the most effective demand for fertilizers. This effect is magnified if subsidies lead to rationing of cheap fertilizer, such that “connections”

somehow become important to one's ability to access them. It is true that, there are now few places in Africa where farmers are unfamiliar with the benefits of subsidized fertilizers (Valerie, 2006).

According to Shalit and Banskirger (1984), there are arguments that subsidies can provide benefits in terms of increased agricultural output and/or incomes. Arguments of this type often do not make an explicit case that the potential efficiency losses associated with subsidies will be offset by expected output or income gains. By focusing on farmer or trader profitability, these arguments tend to have a financial rather than an economic analysis perspective.

Ellis (1992), commented that although the short term objective of subsidies is to make farmers more willing and able to promote the use of fertilizer, the problem is how to get farmers to adopt a higher-productivity technology; in this case to move from a zero or low level of fertilizer use to a higher level. An important issue is whether once farmers try higher fertilizer levels, they will become convinced of the benefits and will continue their adoption and use of higher fertilizer levels even when subsidies are removed.

Shalit and Banskirger (1984), argue that especially where high-yielding varieties are available, once farmers realize that fertilizer is necessary to achieve high yields, subsidies can be removed since that should not affect adoption since "once the adoption process proves successful, returning to the traditional cropping method will be economically inferior".

Ellis (1992), while noting the possibility that farmers will come to expect subsidies and exert political pressure to maintain them, nonetheless argues that once farmers have

adjusted to the optimum levels of fertilizer use, phase-out of subsidies is unlikely to cause a severe fall in fertilizer use or yields (given that farmers are on the low-slope upper part of the yield-response-to-fertilizer function). Evidence from Indonesia that supports this is presented in Ellis (1990), who notes that although 16 of 29 African countries had reduced or eliminated fertilizer subsidies by 1994, fertilizer use seemed to have been more affected by other policy changes (e.g., devaluation, or by inefficient marketing systems, than by changes in subsidy rates). Cleaver (2003), states that government-distributed subsidized fertilizer programs have provided very little subsidized fertilizer to poor farmers, so that eliminating the programmes rarely affected them. Kherallah *et al.* (2002), commented that fertilizer subsidies are very hard to target; benefits have generally gone to the relatively well-off farmers or those with high cash incomes. Ellis (1992:133), gives the following reasons for its occurrence: Firstly, wealthy clients [are] in a position to pay the ‘under the-table’ costs of acquiring inputs supplies; input delivery is linked to state credit provision, to which wealthier farmers have easier access; and bureaucratic procedures for delivering inputs “tend to favor those who can afford to persist with the paperwork or can pay others to do so.”

IFDC (2003) and Jayne *et al.* (2003), reported that fertilizer subsidy programs impede the emergence or effective operation of the private sector input marketing system. Reasons cited for this include: Subsidies provided by state-run programmes or enterprises take business away from private traders. Political interference and manipulation of subsidy schemes is common. The policy uncertainty and instability that creates, along with the below-market fertilizer price, can discourage private traders from participating in fertilizer marketing (and reduce farmers’ overall access to fertilizer instead of promoting it).



According to IFDC (2003), subsidy programmes are costly to administer. The state-run programmes or state enterprises that often implement them are governed by “non-market” rules, and their performance is likely to be sub-optimal. A common example of this is late or unreliable delivery of fertilizer which can significantly reduce the yield effect of the fertilizer provided. Pender *et al.* (2004), reported that, subsidies for certain types of fertilizers may damage the soil by depleting certain nutrients or causing soil acidification. More generally, fertilizer subsidies have been financially unsustainable, and “have helped bring some public treasuries near bankruptcy. Donovan (2004), reported that, fertilizer subsidies have been an inferior policy choice relative to other alternatives available, and do not address some of the major problems that cause low fertilizer use (e.g., supply and credit constraints to mention just a few). The fertilizer price is not the only factor constraining demand for fertilizer. Where fertilizer use is profitable, using subsidies is less cost-effective than addressing other constraints.

## **2.6 Factors affecting inputs supply in sub-sahara-Africa**

Gregory and Bomb (2006), reported that, in spite of policy reforms in many countries in Sub Sahara-Africa, there was low response of the private sector in the distribution of inputs due to the following reasons:

### **2.6.1 Uncertain policy environment**

Through liberalization and privatization efforts, many countries have removed price and marketing controls and the private sector has made significant inroads. However, there is a lingering fear in the minds of policy makers that the private sector is not capable of supplying inputs in a cost-effective manner, and therefore, the government should intervene directly in the marketplace. For example in Zambia in 2003, the government

bought 48,000 tons of fertilizers (out of 120,000 tons of total use in the country) and distributed that to targeted farmers at half price. Similarly, the government in Malawi, with support from donors, distributed free inputs to selected poor farmers.

In 2003, the Government of Tanzania announced that it would supply subsidized fertilizers to selected areas in the country. In 1999, the Government of Nigeria announced a 25% subsidy on all fertilizers and forced the private sector to deliver fertilizers at the local government depot. Payments for such deliveries were not made promptly, and as a result, the private sector reduced imports for the next year. Once the farmers know that there is a subsidy, they justifiably refuse to buy fertilizers at the full price, and the fertilizer dealer has to incur losses in carryover stocks for a year because fertilizer use is seasonal. Such pronouncements not only produce an adverse impact at the micro level (dealers) but also affect import planning at the macro level. The 2003 situation in Tanzania illustrates this point well. Because the local dealers were not able to sell their product in late 2003 and early 2004, they did not order supplies from the wholesalers and importers, and importers did not import adequate fertilizers needed for topdressing of the short rain's crops. By the time the government finalized its plan, it was too late to get an adequate and timely supply of fertilizers in the country. Likewise, the Government of Madagascar announced in 2004 that it would import fertilizers for direct distribution. Naturally, the private sector did not import sufficient fertilizers, and the government could not get funding to import fertilizers, thus farmers suffered from the fertilizer shortages. Not only did the governments send wrong signals but also the donors and nongovernmental organizations (NGOs) contributed to the uncertain policy environment by distributing free inputs. Fertilizers received under Kennedy Round 2 (KR2) have also created problems for the private sector in Uganda, Tanzania, Mozambique, and Madagascar. Fertilizers under KR2 are required to be sold at one-half free on board (f.o.b.) price, which is significantly lower than the price charged for

commercial imports. Any dealer who can obtain KRII fertilizers can easily out bid the other dealers who are selling fertilizers at full prices. KRII fertilizers should be properly integrated with commercial imports. Thus, the policy environment faced by the private sector remains uncertain in many countries.

### **2.6.2 Inadequate human capital**

The quantity and the quality of human capital involved in the fertilizer business are limited. Quantity refers to the number of input dealers available in the country, especially in the rural areas, and the quality refers to the marketing and technical skills of the people involved in the input business. The limited number of qualified input dealers in the countryside is reflected in the fact that it is easier to find “Coca Cola” than seed or fertilizer in an African village. A developed input marketing system is served by an extensive dealer network into the rural interior, which makes inputs available to farmers at affordable prices and in a timely manner. Although in some countries, such as Kenya, there are more than 3,000 input dealers, in many other countries (Malawi, Zambia, Nigeria, Uganda, Ethiopia, and Madagascar), the number of dealers serving the farming population is limited. In Uganda, there were less than 100 input dealers in the country and few in the rural areas in 2001. Even in Tanzania, there were only 500 input dealers in 2003. Moreover, many of these dealers are concentrated in urban or semi-urban areas. Therefore, there is a scarcity of dealers in the rural interior near smallholder farms. As a result, farmers must travel 20–30 km to purchase fertilizer, seeds, and other inputs. This raises the cost of inputs to farmers, either limiting the quantities they can afford to purchase or rendering them unable to purchase any inputs at all. Not only is there a paucity of dealer networks in the countryside but also the marketing and technical skills of input dealers involved in the input business are limited, and their linkages with wholesalers and

importers are restricted. Many dealers lack proper knowledge about fertilizer products, their proper use, and storage. It is not uncommon to find retail shops where the dealers have stocked seed, fertilizer, sugar, pesticides, and flour on the same shelf. Because fertilizer is a knowledge-intensive commodity, the lack of technical knowledge on the part of dealers restricts the development of the input business, and not separating pesticides from food items poses serious health risks.

### **2.6.3 Limited access to finance**

The input business is capital intensive, and access to finance is an important determinant of the importers' and dealers' ability to conduct their business activities. The banking sector in African countries has limited outreach in rural areas. High interest rates and stringent collateral requirements make it difficult to access finance for business development. Many commercial banks consider the input business as agriculture and are reluctant to lend for the input business. Generally, they are risk-averse because many of these banks have lost large sums of money in agricultural lending in the past. Poor loan recovery and the lack of mechanisms for contract enforcement in rural areas also discourage the commercial banks from venturing into input business lending. Importers and dealers find the collateral and other lending terms unattractive given the seasonality of agriculture, the relatively low returns from the inputs business, and the high level of risk due to the vagaries of the weather. Loans provided by microfinance banks are inadequate for business development. For example, in Tanzania, microfinance banks lend \$50 to \$500, which is adequate for only 3–30 bags (of 50 kg each). A dealer selling approximately 1,000 tons of fertilizer products may need \$300,000 or more. It must be stressed that many commercial banks in African countries have liquidity with them but are

reluctant to advance loans to input dealers. Innovative mechanisms are needed to induce banks to lend for agribusiness development.

#### **2.6.4 Lack of market information**

Market information is important for market development because it creates market transparency and information flows. This enables planning and reduces transaction costs, which facilitates long-distance trade. Although some countries have started developing market information systems, their coverage is inadequate on prices and availability in different market segments; and due to limited resources, dissemination is weak. In many countries, the information about regional and global fertilizer markets with importers and wholesalers is limited. The lack of an effective market information system poses a hindrance to the development of well-functioning input markets. Inadequate information makes it difficult (a) for the government and the private sector to plan ahead to address shortfalls or carryover stocks in the next season; (b) for the private sector to keep abreast of market requirements and shortages in different parts of the country and plan their marketing strategy accordingly to meet farmers' needs and maximize their returns; and (c) for market participants to be aware of the current market situation beyond their immediate geographic area.

#### **2.6.5 Weak regulatory systems**

In a private sector-led input marketing system, one of the critical roles of government is to protect the interests of consumers and the general public by formulating and enforcing a legal and regulatory framework regarding quality, standards and measures, safety in use and disposal of inputs, and business ethics. In Tanzania, no regulatory framework exists

for fertilizers. In other countries, where fertilizer laws exist, the enforcement of those laws is inadequate. In 2000, Nigeria faced a serious problem of adulteration and mislabeling of products. Mixtures of sand and urea were sold in NAFCON bags (IFDC *et al.* 2001). In that same year, in Malawi, more than one million liters (L) of outdated pesticides were available for sale in retail shops. Many retailers sell fertilizers from open bags in small quantities of 1, 2, or 5 kg. Because fertilizers are hygroscopic, such practice can lead to caking and reduced usefulness of fertilizers. Although there is no quality problem with straight products in Tanzania, Zambia, or Malawi, there is a danger of poor quality with NPK mixtures or blended products. Proper checking and regulation is needed to ensure truth-in-labeling and quality at the point of sale. A comprehensive regulatory system is required at the country level.

#### **2.6.6 Size of the market**

Take an example of fertilizer, SSA accounts for less than 1% of the global fertilizer market, and at the country level, the size of the market is even smaller. More than one-half of the countries use less than 10 000 nutrient tons and more than 80% use less than 50,000 nutrient tons. Additionally, these countries use several different products: Urea, Ammonium Sulphate, Calcium Ammonium Nitrate (CAN), Triple Super Phosphate (TSP), Diammonium Phosphate, (DAP), Muriate of Potash (MOP), Nitrogen Phosphorus and Potassium (NPK), and a large number of other compounds. Most of these products are imported. Because of economies of scale in production and procurement, countries using small quantities of these products pay higher prices for both product and shipping. For example, in 1999 importers in Uganda were importing in small parcels of 500–1,000 tons each of various products at high prices, and farmers were paying more than \$600/ton for urea when urea was sold for less than \$100/ton on the global market. Such a high price

was the result of both an underdeveloped fertilizer market and small quantities procured in the global market. When Ugandan importers were advised to piggyback their import orders with large importers in Kenya, the retail price of urea dropped to more than \$300/ton.

### **2.6.7 Technical constraints**

Sound technical knowledge of inputs (e.g. fertilizer) on the part of farmers is essential to promote the adequate and timely supply of inputs in the countryside. Poor farmer knowledge regarding the correct use of agricultural inputs is a serious problem. Smallholder farmers growing food crops in Tanzania primarily use topdressing fertilizer; very few use basal fertilizers due to knowledge and economic constraints. Some farmers use a mixture of DAP and CAN for topdressing crops in Tanzania, but such a practice leads to a waste of resources because topdressed DAP provides little benefit. There is a need to update the fertilizer recommendations and make them more appropriate to the different agro-ecological zones and input and output market realities faced by farmers. In many countries, fertilizer recommendations are based on the fertilizer trials conducted in the 1970s or early 1980s. With changes in cropping patterns, crop mixtures, and continuous cropping, there is a need to develop better fertilizer recommendations. The continuous cultivation without proper and adequate use of fertilizers or the use of N for topdressing without basal application of NPK fertilizers is leading to soil infertility and degradation problems. As a result, in some areas P deficiency is so acute that a small dose of phosphate fertilizers or Minjingu PR (in East Africa) can lead to increased crop yields. This lack of P has been confused with soil acidity and lime application. New soil tests and fertilizer trials are needed to establish proper recommendations for fertilizers and lime, if necessary.

### **2.6.8 Infrastructural constraints**

In many countries, such as Zambia, Tanzania, Ghana, and Nigeria, main highways and inter-city roads are well maintained, but feeder roads linking main cities to other areas are in poor condition, and add to transportation costs and make inputs costly. Improvement in rural road networks is essential to promote social and agricultural development and reduce transaction costs. Only through well-maintained roads can the isolation of rural areas be eliminated. In this context, the work done by the USAID-funded Rural Road Project (1998–2003) in Tanzania on building gravel roads in the Big Four regions (Iringa, Mbeya, Rukwa, and Ruvuma) is noteworthy. Under this program, 1,175 km of roads have been built in 18 districts at an average cost of Tsh 8.4 million per kilometer (IFDC 2004). These road networks seem to have helped in linking rural communities to towns and market centers and have generated significant benefits for the communities in terms of increased production and incomes. However, in other parts of the country, especially western Tanzania, rural roads are in very poor condition. Improvement of rural roads, though a long-term activity, is essential for socioeconomic development. Physical insecurity in rural areas also discourages the development of input business. Many input dealers, especially those operating input businesses in cities and district towns in Nigeria, Malawi, and Zambia reported that they were afraid to open a store in the village because leaving fertilizer stocks there was not safe. The lack of covered railway wagons on the Tanzania-Zambia Railway Authority (TAZARA) railway line forces dealers to use costly road transport rather than rail routes in Tanzania and Zambia. The lack of banking facilities in the rural areas also discourage the development of fertilizer business because the sale of even 500 tons of fertilizer could generate billions of kwacha or cedis or local shillings in cash and invite the risk of robbery or physical assault.



It should be remembered that, the issue of input procurement and distribution is area specific. The mere geographic location of the area can act against input retailers and farmers. Farmers in a particular area have to pay higher prices for inputs and receive lower prices for crop products. Also the demand for inputs differs from one area to another depending on many factors including the nature of soils and farmer's knowledge and skills on inputs use. Gregory and Bomb (2006), reported that, not all countries in SSA have access to the coastline. Many countries (such as Mali, Burkina Faso, Uganda, Zambia, Malawi, Congo, Rwanda, and Burundi) are landlocked countries. These countries incur \$50/ton to \$100/ton for transporting goods from the ports to their borders. Farmers in these countries have to pay higher prices for imported fertilizers and receive lower prices for crop products.

## **2.7 Stakeholder's participation**

According to Maeda (1976), participatory approach is a process which allows people at grassroots' level to take active part in making decisions regarding their own destiny. Participatory approach therefore implies that the affected people be involved and enabled to identify, make choice, implement and evaluate their own projects. Participation could help private sector to be directly involved in development businesses. It has been argued that, through participation more competitive and better services can be delivered to customers. The leading United Nations special agencies are also using this expanded concept of participation, with a view to sharing with the private sector a greater part of their public responsibilities. It is now simply perceived as one of the many resources needed to keep the economy alive.

Research for Poverty Alleviation (REPOA) (2000), the arguments for community participation includes; (a) Community participation is education because a “dialogue”; a two-way exchange of knowledge takes place in the interactions between communities; (b) Community participation is empowering because experience of how to influence, implement and control activities which improves the quality of life is gained by the people; (c) Community participation is a process because education, empowerment and increasing responsibility require time; (d) Community participation is a partnership between community and agency because in most services especially rural water supply projects, there will always be resources (for example machinery and technologies) which must be provided from outside the community; (e) Only when problems and needs are identified by the community and not assumed to exist by the agencies is when participation in programmes be feasible; (f) The community bears responsibility for planning managing and assessing their actions if they are to control them. This will also ensure maximum self-reliance and continuity of activities when outside support is withdrawn; (g) Collective action is necessary to address collective problems. This is undertaken through an organizational structure which is broadly-based, flexible and ensures continuity of action and independent of individual leadership

### **2.7.1 Important principles of stakeholders’ participation**

According to URT (2004), the process of participation at the local levels in Tanzania is perceived as one of collective approach which leads to sustainability of rural development initiatives. Important principles of community participation include; firstly, inclusiveness when all stakeholders at various lower levels of the community are identified; secondly, consultation in order to reach consensus on different decision making processes by using convened meetings; thirdly transparency as one of information flow by informing

adequately stakeholders on project set priorities, funding sources and spending with realistic plan and implementation strategies and fourthly is equitability which should base on involving and reflect all stakeholders' interests, gender, age group, religious and marginalized groups. Other principles include; (a) facilitation for community participation in rural development initiatives as it empowers them for analysis, set vision, plan, implement and evaluate and implemented projects; (b) participatory approach should address cross-cutting issues that are often ignored such as use of natural resources and others. Accountability of all stakeholders to the public and others who will be the owners of the original and final output by exerting positive control and active responsibility; (c) participatory approach should focus on a vision which is clearly understood on collective conceptualization of community needs, opportunities and dreams of the majority and not forgetting the minority views.

### **2.7.2 Indicators of participation**

According to Bartle (2002), there are several sets of observations that will indicate to us that some empowerment through participation has taken place they include; (a) individuals willingness to donate at community fund-raising events in cash or communal labour contribution; (b) communication and information quantified on the abilities to speak, write and listen which are sociological changes in nature; (c) confidence in communal and individual context analyzed by looking at the informal laws, legislation, government institutions and guidelines through attitudes and practices of leaders and local authorities. Other indicators of participation in the community are: (d) intervention through community workers, formal and informal leadership and networking on how community members can contact each other for obtaining resources for communal; (e) the change of skills through a number of individuals trained in certain skills, trust in collective attitudes

and values held by individuals in the community; (f) unity in a set of community values expressed in individuals' attitudes; (g) communal wealth which is recorded in terms of social services facilities in the community such as new clinics, roads, schools and water projects just to mention a few.

### **2.7.3 Critiques of stakeholders' participation.**

Critiques of community participation include; (a) in many developing countries there is no mechanism for sharing information. This often results in duplication of research activities. Consequently, the reaction of communities becomes negative and hostile as they become exhausted with repeated exercises; (b) community participation costs time and resources or money, it is said to be a process without guaranteed impact upon the end product. Participation can greatly add to the costs of development activities and therefore its benefits need to be carefully calculated; (c) there is often more focus on techniques than on enhancing the central role of the community in the development process resulting in the community having high expectations of agencies assistance (IPPF 1996, REPOA, 2000).

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Description of the study area**

##### **3.1.2 Location of the study area**

This study was carried out in Hai District, Kilimanjaro Region, in Northern Tanzania between September 2006 and May 2007. The District is situated on the south-western slopes of Mount Kilimanjaro with an altitude ranging from 700 to 5,895 meters above sea level (m.a.s.l). It has an area of 2,112 square kilometers out of 13,209 square kilometers for the Region and it is divided into 4 divisions, 14 wards, and 85 villages. It shares borders with Moshi Rural District on the east, Simanjiro District on the south, Arusha Region on the west and north east, and the Republic of Kenya and Rombo District to the north and north east. Rainfall ranges from 700 mm to 2,000 mm per annum and temperature ranges between 15 °C to 30 °C. The rainfall pattern is bimodal. The short rains fall between October and December and the long rains between February and May.

The reason for the choice of the study district is based on fact that, Hai District is one among the districts in Tanzania where many projects have been operated there. These projects include: National Agriculture and Livestock Extension Rehabilitation Project (NALERP), Sasakawa-global 2000 (SG-2000), Participatory Agricultural Development Empowerment Project (PADEP) and FAO fertilizer trials.

### **3.1.3 Population**

The District carries a population of 259,958, of whom 127,782 are males and 132,176 are females (Kilimanjaro Regional Commissioner's Office and National Bureau of Statistics, 2002). The population is divided among 58,056 households and the average household size is 4.5, which is below the Regional average of 4.6 and national average of 4.9

### **3.1.4 Cropping system**

The population primarily depends on subsistence and cash crop agriculture, including livestock production. Crops produced in the District include coffee, banana, maize, beans, paddy, sunflower, potatoes, vegetables, barley, wheat, flowers, and fruits. Livestock kept include both indigenous cattle and improved dairy cattle. Other livestock kept include goats, sheep, and poultry. Land available for farming is 134 981 ha and lies between 700 to 1,550 m.a.s.l as the remaining constitutes part of Kilimanjaro National Park.

### **3.1.5 Study Villages**

Seven villages from five wards were selected as the area of the study. These included: Boma ng'ombe (Bomani and Kibaoni sub-villages) in Hai Centre; Sanya Juu and Karansi in Siha Centre; Shiri Njoro and Kikavu Chini in Machame South; Mungushi and Kwa Sadala in Masama South; and Nshara village in Machame North. The wards were selected through a two-stage process, which entailed selection of seven villages from which respondents were selected for interview. Actual village selection was preceded by formulation of selection criteria. The researcher formulated the criteria for village selection in order to capture the required information. The criteria included

representativeness of the village, accessibility, presence of extension officer (s) and potential of the village in terms of agriculture.

### **3.2 Research design**

Cross sectional design and a survey method were used during survey due to limited time and resources. The design is recommended by Bernard (1994), and Babbie (1990), because of its dual purpose of simple statistical description and interpretation making it possible to determine relationship between variables.

### **3.3 Sampling Procedure**

#### **3.3.1 Sampling frame**

The sampling frame for the study included smallholder farmers from selected villages, agricultural input traders and Village Agricultural Extension Officers (VEOs) in the study area.

#### **3.3.2 Sampling design**

In order to obtain the required information, both purposive, random, and snowball sampling designs were employed during the survey. Purposive sampling was applied to select and list the names of 50 farmers from each village. The criteria for selection were based on gender balance, geographic representativeness, reachability, and potentiality of the farmer. Random sampling was then used to select farmers by taking every 7<sup>th</sup> name in the list to obtain 7 farmers in each village. A total of 49 farmers were obtained from the

seven villages for interview and one farmer was accidentally involved in the interview making a total of 50 interviewed farmers.

To obtain the 9 extension officers, purposive and snowball sampling techniques were applied. Purposive sampling was employed to select 7 extension officers given the condition that, they should come from the selected villages for survey. Snowball techniques was applied obtain the rest two extension workers by the requesting the selected ones to tell if they knew any other extension worker in the nearby villages.

### **3.3.3 Sample size**

The total number of respondents in this study was 76. Out of these, 50 were smallholder farmers, 17 were inputs traders and 9 were extension officers. The total number of authorized inputs traders in the whole district was 18 and almost all (17) were interviewed. The number of extension officers was relatively small because the selection was entailed by the villages selected for the study. However, the majority of extension officers share similar characteristics.

### **3.3.4 Data collection methods**

#### **3.3.4.1 Primary data**

Both quantitative and qualitative data collection methods were used to obtain primary data. The main instrument for quantitative data was structured questionnaire containing both closed and open-ended questions (see Appendix I). This tool availed the information



on demographic, socio-economic and socio-cultural factors that influence private sector participation in delivering agricultural inputs to farmers.

#### **3.3.4.2 Observation**

The observation method was made to see the real situation while visiting respondents for interview. In inputs shops where the main customers were farmers the overall operations of inputs retailers and how they provide technical information to their customers (farmers) were observed.

#### **3.3.4.3 Key informant approach**

More information was collected from key informants including: Tanzania Chamber of Commerce Industry and Agriculture (TCCIA), Tanzania Private Sector Foundation (TPSF), the Ministry of Agriculture, Food and Cooperatives (MAFC), Tanzania Farmers Association (TFA), and District Crop Officers (DCO). A checklist of questions was used to interview key informants.

#### **3.3.4.4 Secondary data**

Secondary data has been used to enrich the primary data sources. These were obtained from sources such as: reports, published and unpublished documents such as books, journals, publications, research reports and web sites.

### **3.4 Data processing and analysis**

In order to draw inferences and conclusions, the data collected from the primary sources were edited, coded and analyzed using the Statistical Package for Social Sciences (SPSS 11.5) computer programme. From the analysis, descriptive statistics such as frequencies, and percentages were determined.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 Overview**

This chapter is intended to discuss the data obtained in this study and especially the major findings. Various sources will be drawn upon and in some cases alternative explanations for some of the findings will be given. Although data were collected from only a small sample as compared to entire population of the respondents, the implications drawn will have direct reference to those who were studied as well as all the rest that have similar roles and responsibilities.

The data to be discussed mainly focused on those aspects thought to have influence on low participation of the private sector in delivering agricultural inputs to farmers. The chapter is divided into four main sections. Apart from the overview, section 4.2 discusses the data obtained from the general characteristics of input businesses, inputs traders, farmers and extension workers (VEOs). Section 4.3 discusses findings related to stakeholders' involvement in issues related to input supply services. Section 4.4 discusses findings related to the government subsidies on agricultural inputs, and section 4.5 discusses findings related to the regulations guiding the quality of products distributed to smallholder farmers. In this study, stakeholders refer to local inputs traders, smallholder farmers and extension workers.

## **4.2 Characteristics of inputs businesses, input traders, farmers and VEOs**

The purpose for choosing these variables was to understand whether they had any influence on private sector participation on delivering agricultural inputs to farmers.

### **4.2.1 The characteristics of input businesses**

In this section respondents were required to provide information related to the nature, number of input shops, categories and the location of input businesses.

#### **4.2.1.1 Nature of input businesses**

Almost half (46.9%), of the inputs traders in the study area were found to operate the input business as a part time activity while the rest were found to be full time inputs traders. The reason given by respondents for such big number of part time inputs trade was that oftentimes, inputs business in the area is seasonal in the sense that it is at its peak during planting time particularly during the long rains (*Masika*) and becomes redundant during the rest of the year. During other times they are involved in other economic activities. The part time nature of the businesses therefore implies dilution of efforts in doing the inputs business. This leads to poor efficiency and quality of services provided to customers (farmers). Based on own observation, some traders in Sanya juu and Karansi village use family members (wife and children) to make sales during their absence. The family members according to observation have no enough experience and technical knowledge on agricultural inputs to satisfy the demand of customers. Poor quality of services offered to farmers therefore, was found to lower the market of inputs.

#### 4.2.1.2 Categories of businesses

Three categories of input traders were identified in the study area: whole sellers, middlemen, and retailers. Among these categories, the majority belong to retailers group which makes up 88.2% followed by middlemen who form 11.8% (Table 1). There was no wholesaler found in the study area. The retailers are found to be divided into two sub-groups which were authorized and unauthorized retailers. Retailers usually buy inputs from wholesalers in regional centers and some distributing companies from Moshi and Arusha regional centers. The big number of retailers group as compared to wholesalers and middlemen implies inability of the majority of input traders to make large purchases of inputs due to low financial capability. This entails small profit obtained out of the business due to failure to exploit the economies of scale for the inputs business.

According to Nkonya and Kato (2001), in a business like fertilizer, exploitation of economies of scale of large purchase of inputs is of great significance to be able to transport them cheaply. However, one needs large amount of trade finance. The amount of financing cost is therefore a constraint to would be newcomers in fertilizer business. Importers get the highest gross and net profit and the marginal rate of return (MRR). Importers' gross and net profit is about twice that of wholesalers and ten times that of retailers. The marginal rate of return (MRR) measures the returns that an investor gets back per unit invested.

**Table : Distribution of input shops within the district**

Village	Category of shops			Total
	Whole salers	Middlemen	Retailers	

Bomang'ombe	0	2	6	8
Sanyajuu	0	0	6	6
Kwasadala	0	0	1	1
Karansi	0	0	2	2
Total	0	2	15	17
Percentage	0.0	11.8	88.2	100.0

#### **4.2.1.3 The number of input shops**

It was found that, the whole district with total of 85 villages and 58,056 households (farmers) have only 18 registered retail input shops serving the farmers. This is equivalent of one shop in every five villages. This implies poor availability and accessibility of inputs by the majority of farmers in remote areas. This finding concurs with Gregory and Bomb (2006), in their study on factors affecting supply of fertilizer in Sub Saharan Africa. They reported that, although in some countries, such as Kenya, there are more than 3,000 input dealers, in many other countries (Malawi, Zambia, Nigeria, Uganda, Ethiopia, and Madagascar), the number of dealers serving the farming population is limited. In Uganda, there were less than 100 input dealers in the country and few in the rural areas in 2001. Even in Tanzania, there were only 500 inputs dealers in 2003. Moreover, many of these dealers are concentrated in urban or peri-urban areas. Therefore, there is a scarcity of dealers in the rural interior near smallholder farms.

#### **4.2.1.4 Location of the businesses**

The study finding indicates that out of 18 registered shops in the district, 16 (88.9%) are located in the district urban centers and only 2 (11%) are located in rural remote villages. Since the villages in the study area are so scattered, smallholder farmers in remote areas have to travel long distances to procure inputs in town centers. Distant farmers and villages with poor roads and transport are difficult to reach. The average distance travelled

by farmers to procure inputs in these centers were between 10 and 30 Kms. As a result, this raises the cost of inputs to farmers and limits the quantities of the products which they can afford to purchase or rendering them unable to purchase any inputs at all.

Because the district shares borders with Moshi Rural District on the east and Arusha Region on the west, those farmers living in the boarder travel to this neighboring towns to procure inputs. Other farmers in the north east, near the Republic of Kenya, procure inputs through unauthorized input traders from Kenya and Uganda which increases farmers' risks in terms of the quality of inputs they buy.

This finding also concurs with that of MOA (1992), who reported that the majority of small scale traders prefer to operate their businesses in places where it is easy to get customers. They also prefer to operate their businesses in places which are not very far from their residential areas so that they can do other activities. Kashuliza and Mbiha (1995), share the same views that the pitfalls of privatization include inputs distributors who, because of being profit oriented, market their products only where there is infrastructure accessibility; low prices for the crops; removal of some subsidies on credit resulting into high rates therefore few better-off farmers get access to inputs, market information and other extension services.

The allocations of input businesses found in this study therefore, imply poor accessibility of inputs by the majority of smallholder farmers. Limited access to inputs for the majority of farmers lowers their adoption to improved agricultural technology leading to small size of input market which eventually discourages input traders to continue with the business.

## 4.2.2 The characteristics of input traders

Among the more important input traders' characteristics dealt with in this section were: traders' education level; traders and sales staffs' qualification; traders' capacity building; and traders' accessibility to finance. The purpose for choosing these variables was to understand if they had any influence on private sector participation in delivering agricultural inputs to farmers.

### 4.2.2.1 Traders' education level

The findings in Table 2 indicate that the majority (76.4%) of respondents had secondary education as their highest education level, 11.8% had university education level, and 11.8% had primary education level. This finding implies that because the majority of traders have secondary education level, they are likely to do input business especially if their performance can be improved through training. According to literature, those trade owners who are able to read and write show significantly better performance in small enterprises than illiterates. Basic literacy and numeric skills are also essential to the efficient management of the business.

**Table : Distribution of input traders according to education level (N=17)**

Education level	Number	%
University	2	11.8
Secondary	12	76.4
Primary	3	11.8
Total	17	100.0



#### **4.2.2.2 Traders and sales staffs' qualification**

Qualification here refers to possession of background knowledge on agricultural inputs, and business management. The findings in Table 3 indicate that although the majority of respondents have secondary level of education only 2 out of 17 have background on agricultural inputs and no one had the background on business management. When traders were asked to state as to whether or not their sales staffs were trained on input use and handling, none of the respondents had reported that, the sales staffs have received any training. Lack of technical knowledge on agricultural inputs on the side of local retailers and sales staffs implies poor efficiency and quality of services provided to customers (smallholder farmers). Based on own observation, some retail shops in the study area have been found keeping seeds, fertilizer, pesticides, sugar, rice , and flour on the same shelf regardless of the fact that, mixing pesticides with food items poses serious health risks.

When respondents were asked why other traders do not join into input business, they mentioned lack of background knowledge on agricultural inputs and business management; lack of trade finance; seasonability of the business; and lack of skilled staff in rural areas to manage the business. Also Crawford *et al.* (2006), shares the same views that, unlike other commodities such as clothes and food, agricultural inputs are knowledge-intensive commodities, and therefore lack of technical knowledge restricts other traders from entering the input business. The quantity and the quality of human capital involved in the input business are limited. Quantity refers to the number of input dealers available in the country, especially in the rural areas, and the quality refers to the marketing and technical skills of the people involved in the input business.

Valerie (2006), in his study on alternative approaches for promoting inputs use in Africa reported that lack of knowledge in agricultural inputs and physical insecurity in rural areas discourages the development of inputs business. For example, many input dealers, especially those operating input businesses in cities and district towns in Nigeria, Malawi, and Zambia reported that they were afraid to open a store in the village because leaving fertilizer stocks there was not safe. The lack of banking facilities in the rural areas also discourages the development of input business because the sale of even 500 tons of fertilizer could generate billions of kwacha or cedis or local shillings in cash and invite the risk of robbery or physical assault.

**Table : Distribution of input traders based on qualification (n=17)**

<b>Background</b>	<b>Number</b>	<b>%</b>
Agricultural inputs	2	11.8
Business management	0	0.0
Others	15	88.2
Total	17	100.0

#### **4.2.2.3 Capacity building of local retailers**

In this study respondents (traders) were required to provide information related to efforts made for providing them with technical knowledge needed for efficient management of their businesses. The findings in Table 4 indicate that only 17.6% of the respondents had received short courses on issues related to inputs and the remaining 81.4% had not received any training. There is no respondent who reported to have received regular trainings organized either by extension workers or distributing companies. Lack of capacity building for the majority of respondents not only implies their poor ability to provide efficient and quality services but also restricts them from keeping proper records of their business which can be a necessary requirement to obtain loans to expand their businesses.

**Table : Distribution of inputs traders based on attending short courses or regular training (n=17)**

<b>Response s</b>	<b>Short courses</b>		<b>Regular training</b>	
	<b>Number</b>	<b>Percentage</b>	<b>Number</b>	<b>%</b>
Yes	3	17.6	0	0.0
No	14	81.4	17	100.0
Total	17	100.0	17	100.0

This finding concurs with IFDC (2003), which reported that, entrepreneurs and managers of small enterprises frequently lack experience or formal training in either technical or financial management of their enterprises. Some managerial training offered if any often times limited in its ability to reach small firms both by lack of adequate personnel and relatively high fees which trainees are supposed to pay. In Tanzania for example, most business management training programs operating, exist in fixed locations to which students must travel for training. Experience shows that, small entrepreneurs are less able to take time off from their farms and their businesses to attend training and therefore frequently fail to utilize existing opportunities.

#### **4.2.2.4 Financial capability**

MOA (1992), reported that in agricultural input business, exploitation of economies of scale of large purchase of products is of great significance to be able to transport them cheaply. However, one needs large amount of financial capital to operate input business. In this study, respondents were required to provide information related to their accessibility to trade finance for them to be able expand their businesses. The findings indicate that, the majority (88.2%), of the respondents use their own funds to operate the business. This big number indicates poor accessibility to bank loans by the majority of input traders. It was found that only 2 stockists out of 17 operate their business using loan from CRDB Bank while the rest use their own money. When asked why they don't take loans from the bank, they said they are not creditworthy to borrow the much required trade finance due to lack of collateral and high interest rates charged by the banks. Together with these reasons the study indicates that those traders who use their own money to operate the business have neither bank accounts nor clear business plans to make them qualify for a loan from the bank.

### 4.2.3 Farmers' characteristics

This variable was chosen in order to understand if farmers' characteristics can influence private sector participation in delivering agricultural inputs. In this section respondents (farmers) were required to provide information on: their education level; technical knowledge on input use; ability to procure inputs; farm size and type of crops they grow.

#### 4.2.3.1 Farmers' education level

The findings in Table 5 indicate that, the majority of respondents (70 %), had primary education, while 30% had secondary education. This implies that the majority of farmers in the study area are able to read and write. This is an advantage in that they can be trained to improve their adoption on improved agricultural technologies. Increased adoption will influence the size of input market which eventually will encourage private sector participation in the business.

**Table : Distribution of farmers according to education level (N=50)**

<b>Level of education</b>	<b>Number</b>	<b>%</b>
Secondary education	15	30.0
Primary education	35	70.0
No formal education	0	0.0
Total	50	100.0

According to CMMYT (1993), education makes a farmer more receptive to advice from an extension worker or better able to deal with technical recommendations that require certain level of numeracy or literacy. Smallholder farmers' education levels have been found to have an influence in developing either a positive or negative response towards adoption of improved technology. For example, Mdemu (2000) postulated that more

educated farmers can have better chances of expressing their views than less educated ones as they have enhanced information processing abilities. Similarly Van den Ban (1996), argued that people who are quick to adopt innovations might be characterized by being well educated. Rogers (2003) generalized that earlier adopters have more years of formal education than late adopters.

#### 4.2.3.2 Farmers' technical knowledge

Mann (2003), commented that sound technical knowledge of inputs on the part of farmers is essential to promote the adequate and timely application of inputs in the countryside. Poor farmer knowledge regarding the correct use of agricultural inputs is a serious problem. Smallholder farmers growing food crops in many areas primarily use topdressing fertilizer; very few use basal fertilizers due to knowledge and economic constraints. Some farmers use a mixture of DAP and CAN for topdressing crops in Tanzania, but such a practice leads to a waste of resources because topdressed DAP provides little benefit.

**Table : Distribution of farmers according to technical knowledge (N=50)**

<b>Technical knowledge</b>	<b>Score</b>	<b>Number of respondents</b>	<b>%</b>
Not knowledgeable	1-9	25	50.0
Knowledgeable	10-20	20	40.0
Very knowledgeable	21-25	2	10.0
<b>Total</b>		<b>50</b>	<b>100.0</b>

Farmers' technical knowledge in this study was measured by requesting respondents to indicate the technical recommendations for maize production. Their responses were compared to official technical recommendations obtained from the District Agricultural and Livestock Development Officer (DALDO). About 25 questions were asked and each

question had one score as indicated in Table 6. The findings from Table 6 show that only 10 % of the respondents were very knowledgeable, 40% knowledgeable and 50% not knowledgeable on technical recommendations for maize production. The big number of unknowledgeable farmers on technical recommendations implies poor extension services in the area. Poor extension services affects the adoption of improved agricultural technologies by farmers leading to small size of input market which eventually discourages the private sector participation in the inputs business. Mlambiti (1994), reported that the majority of the agricultural labour force in Tanzania is unskilled. It lacks training in modern production methods or proper utilization of agricultural inputs including utilization and maintenance of machineries.

#### **4.2.3.3 Farmers' ability to procure inputs**

The findings from the study indicate that, 95% of respondents cannot afford to procure inputs as per recommended rates due to high prices of inputs and low prices offered for their products. This led them to apply inputs below the recommended rates. Mlambiti (1994), reported that, the prices of farm products are far too low compared to those of industrial products. This situation is accentuated by poor marketing system as well as poor national policies which favour urban consumers at the expense of the rural society. Such policies discourage farmers from expanding their production and hence resorting to production for self-sufficiency with a little surplus for sale and for procuring inputs. He added that internal capital growth is not easy whether one is a farmer or any other businessman. Therefore, in order to increase farm output, a farmer needs additional capital to buy improved inputs. This capital is supposed to come from financial institutions. Unfortunately credit offering institutions in developing economies have failed to serve the

farmer efficiently as a result farm credit is difficult to acquire and if obtained it is very expensive because of high interest rate.

Benad (1988), and Mvena and Mattee (1988), reported that the subject of adoption of innovations has often been researched and discussed with a view of finding appropriate strategies for bringing about a more rapid modernization of the agricultural sector. However, in reality, farmers all over the world, rarely adopt complete packages and rarely comply exactly with the recommendations made when it comes to their specific situations. Most farmers do not follow official input recommendations. They use much lower doses, which are often a result of financial constraints rather than of estimates of potential profitability.

**Table : Distribution of farmers according household size (N=50)**

<b>Household size</b>	<b>Number of respondents</b>	<b>%</b>
Less than 1 Member	0	0.0
1-3 Members	15	30.0
4-6 members	30	60.0
7-9 Members	5	10.0
Total	50	100.0

The study revealed that household size and number of children in school also influence farmers' ability to procure inputs. The results in Table 7 shows that the majority (60%), of the respondents came from households with 4-6 members, 30% from households with 1-3 members, 10% from households with 7-9 members and no household had less than one member. The predominance of households with 4-6 household members could therefore be explained by the high expenditure in sustaining life. With regard to number of children in school, 80% of the respondents came from households having 1-3 children in school, 20% from households having 4-6 children in school, and there was no household with less



than one or more than six children in school (Table 8). The predominance of households with 1-3 children in school could be explained by the high expenditure in school expenses.

**Table : Distribution of farmers according to number of children in school (N=50)**

<b>Number of children in school</b>	<b>Number of respondents</b>	<b>%</b>
Less than 1 Child	0	0.0
1-3 Children	40	80.0
4-6 Children	10	20.0
More than 6 Children	0	0.0
Total	50	100.0

When respondents were requested to give their response on their priorities in spending money after selling their crops, the majority (72%), indicated taking children to school as their first priority, followed by renovation or building new houses. The third and fourth priority being clothing and inputs respectively. Generally the issue of inputs procurement was given the last priority by the majority implying small size of input market in the area.

#### **4.2.3.4 Farm size and type of crops grown**

Findings in table 9 indicate that the average size of farms ranges between 1 and 2 ha (92%). This finding concurs with the report given by URT (2006), which reported that the total land area allocated to smallholders in Kilimanjaro is 1 ha per household. The types of crops grown in an area includes: maize, beans, paddy, sunflower, vegetables coffee and banana. Small sizes of farms in relation to the types of crops grown, implies subsistence farming. According to URT (2006), maize is the most important crop in the country and it has a planted area of 4.25 times greater than cassava which has the second largest planted area. This is followed by beans, paddy, sorghum, cashew nuts, groundnuts, cotton, banana, coffee, sweet potatoes and mangoes. These findings imply small size of input market which does not encourage private sector participation in inputs business. The World Bank (1991) share the same view, by reporting that fertilizer is normally used on cash crops and

price factors are therefore very important. Thus, it is very difficult for farmers to buy inorganic fertilizers for food crops that are only marginally marketable.

**Table : Distribution of farmers according to farm size (N=50)**

<b>Farm size</b>	<b>Number of respondents</b>	<b>%</b>
Less than 1 acre	1	2.0
1-2 acres	46	92.0
3-4 acres	2	4.0
More than 5 acres	1	2.0
Total	50	100.0

This findings are also supported what Sharland (1991), commented in his study on improving input use. He asserted that production that is primarily for sale has very different priority values and methods from that for subsistence production. He argued further that although the differences between commercial and subsistence production are manifold, the central issue of subsistence production that affects most traditional practices is the importance of risk aversion which seeks to ensure a minimum level of production in worst years; and that this strategy leads to many varied practices that are seen as irrational or wrong to scientists and the commercial sector.

#### **4.2.4 Extension workers' characteristics**

In this regard, respondents were required to provide information related to their qualification; specialization and working experience. The aim was to understand if these variables might have any influence in the participation of the private sector in delivering agricultural inputs to farmers.

In terms of qualification, 88.9% of the respondents have diploma as their highest qualification while 11.1% have certificates. Out of these, 33.3% specialized in crop production, 22.2% in livestock production, 33.3% in general agriculture and 11.1% were

specialized in agro mechanization (Table 10). This implies that the majority of extension workers in the study area had the necessary qualification and specialization to provide extension services to farmers.

**Table : Distribution of extension workers according specialization**

Specialization	Number of respondents	%
Agriculture	3	33.3
Livestock	2	22.2
Agriculture and livestock	3	33.3
Agro mechanization	1	11.2
Total	9	100.0

Although the majority of VEOs had the necessary qualification and specialization to provide extension services to farmers, it was reported that more than 90% of the farmers have no habit to contact VEOs for advice before and after procuring inputs from local traders. When extension workers were requested to provide reasons, they reported that their credibility to farmers was lowered since the privatization of input supply services. Before the privatization of input supply services, farmers were used to obtain inputs from state owned enterprises through VEOs. After the privatization, farmers were forced to procure inputs from private inputs traders. Since then, the gap between extension workers and farmers was increased since they don't provide them with seeds or fertilizer. This implies that, on the side of the farmers, advice without material for practicing is not very important since when the season starts, they have very limited time to seek the VEOs for advice only and traders for procurement of materials. It was reported that, the majority of farmers obtain extension services from local traders during procurement of inputs. As discussed in the previous section, the majorities of traders have little background on agricultural inputs and experience on extension services. This subjects farmers to obtaining very little and sometimes wrong advice which makes them fail to obtain the expected results of the inputs they procure. This eventually discourages the adoption of

improved agricultural technologies by smallholder farmers. Other reasons for poor contact between farmers and VEOs were reported to be: Low number of agricultural extension workers in the study area, lack of motivation for extension workers, poor infrastructure, and lack of working facilities for extension workers.

Extension workers' attitude might also be a contributing factor to poor relationship between extension workers, farmers and input traders. Van den Ban and Hawkins (1996), argued that extension officers normally lack good communication techniques. He noted that many extension officers have not been trained in adult education and communication skills. Mwaseba *et al.*(1991), also share the same view that extension officers favour certain categories of farmers (e.g. contact/key farmers). Such differential contact with farmers usually builds deferential attitudes among the categories of farmers; in general small holder farmers may feel that they are neglected by the extension officers and that they will never be reached by the extension officers. Hence they may have a feeling that all the messages are not meant for them but only for the small elite group of farmers in the community said to be important.

Much has been said in the literature on the different extension approaches used by the extension officers and how they have contributed to the development of positive or negative attitude of small holder farmers towards them. This can be seen from different perspectives. For example, the majority of extension officers have been and perhaps are still not willing to learn from farmers, to use participatory approaches, to live with farmers and utilize smallholder farmers' indigenous knowledge something which is deemed relevant for improving their job performance. This in turn might have some influence on the smallholder farmer's attitude. Extension officers by virtue of their level of education and professional orientation, demonstrate elitism and professional class consciousness.

They are regarded as experts and therefore in powerful control of agricultural knowledge and skills. On the other hand, farmers experience is frequently not acknowledged by extension officers and is rarely incorporated fully into extension programmes. This type of relationship does not result in a positive attitude between the two parties, (Mlozi and Mvena,1990).

### **4.3 Stakeholders' involvement in issues related to inputs**

The World Bank (1996), define participation as a process, through which stockholders influence and share control over development initiatives, decisions and resources which affect them. Cohen and Uphoff (1980), define participation as people's involvement in decision-making process, implementing programmes, evaluation and sharing of benefits of development programmes. Maeda (1976), commented that participation means much more than occasional meetings in which project staff discuss their plans with local people in usual benefactor to beneficiary manner. In a country like Tanzania which advocates democracy it is imperative that people at all levels be involved in all stages of development planning and implementation.

In this section, the issue of participation was considered relative to liberalization of agricultural input supply services following the agricultural sector reform in Tanzania. The purpose for this variable was to understand if stakeholders' involvement in the privatization processes has influenced low participation of the private sector in delivering agricultural inputs to farmers. Stakeholders in this section refer to all those who in one way or the other benefit or are affected by the issues related to agricultural inputs including private traders, farmers, and extension workers. In order to obtain information related to stakeholders' involvement in issues related to inputs, respondents were requested to provide information concerning their participation in the process of

privatizing the agricultural inputs supply services and in the preparation of farmers' inputs requirements.

#### **4.3.1 Participation in the process privatizing input supply services**

In this section respondents were requested to give response if they have participated in the processes of liberalizing input supply services including: participation in problem identification phase, planning, implementation, monitoring and evaluation phase.

##### **4.3.1.1 Participation in problem identification phase**

When respondents were requested to provide information regarding their involvement in the initial stage of the privatization process, all key stakeholders reported that they have not been involved in the problem identification phase. This implies wrong footing of the liberalization policy on agricultural inputs resulting into poor awareness of beneficiaries on the benefits and consequences of implementing the policy. This contributed to the lowering of the number of private traders involved in the inputs business and to exploiting the benefits of the privatization policy. According to Maeda (1976), participatory approach is a process which allows people at grassroots' level to take active part in making decisions regarding their own destiny. Participatory approach therefore implies that the affected people are involved and enabled to identify, make choices, implement and evaluate their own projects.

REPOA (2000), commented that only when problems and needs are identified by the beneficiaries and not assumed to exist by the agencies is when implementation of the programmes can be feasible. The community bears responsibility for planning, managing

and assessing their actions if they are to control them. This will also ensure maximum self-reliance and continuity of activities when outside support is withdrawn. Collective action is necessary to address collective problems.

#### **4.3.1.2 Participation in planning phase**

Out of 17 input traders who have been interviewed only two reported that, they were involved in the planning phase. On the side of VEOs, the findings indicate that only one out of nine has reported that he was involved in the planning phase. There was no farmer who reported that he/she was involved. These findings indicate that the majority of beneficiaries were not involved in the planning phase. This answers the question why there has been a slow taking over of the private sector after the withdrawal of the government in delivering inputs to farmers. MOA (1992), reported that trade liberalization policy was among the rural development programmes implemented in Tanzania. In the course of its implementation, the private sector since 1988/89, has gradually replaced cooperatives as major input distributors particularly in seeds and fertilizer distribution.

#### **4.3.1.3 Participation in implementation phase**

All extension workers reported that they were involved in the implementation phase by being told what to do. Local input traders (88.5%) and smallholder farmers (90%) also reported that they were informed through announcement in the mass media. According to literature, the response of the private sector to exploit the benefits of the privatization policy was still poor. Although the majority of respondents reported that they were involved in the implementation phase but it is implicit from the literature that, the participation was passive and did not guarantee sustainability and autonomy on the side of

the implementers. According to Howlett and Nagu (2001), passive participation means people participate by being told what has been decided or what has already happened. This is different from interactive and effective participation which is the type of participation recommended. With this type, people participate from analysis, planning, implementation, monitoring and evaluation stages. This type of participation ensures active people participation in the whole process so as to ensure that needs and objectives of people have been attained.

If a top down decision is applied, people may act passively for the implementation and maintenance of the project even if project components are the same. Top down approach tends to create dependency and consciousness of the beneficiaries instead of their self reliance. To the contrary, if the bottom up approach would be adopted, the chances of securing sustainability and autonomy of the village would be greater.

#### **4.3.1.4 Participation in monitoring and evaluation phase**

The findings from this study indicated that all key stakeholders were not aware if there has been a programme on monitoring and evaluation of the privatization policy and if there has been any, they were not involved. It is argued that the participatory approach becomes more valid and useful when the community makes assessments of the level of today, one year and five years ago to see if they have succeeded and to what extent they have been empowered.

Bartle (2002), explained individual willingness to donate at community fund-raising events in cash or communal labour contribution as one of the indicators of participation. Other indicators include: confidence in communal and individual context analyzed by



looking at the informal laws, legislation, government institutions and guidelines through attitudes and practices of leaders and local authorities; communication and information quantified on the abilities to speak, write and listen which are sociological changes in nature; intervention through community works, formal and informal leadership and networking on how community members can contact each other for obtaining resources for community and the change of skills through a number of individuals trained in certain skills, trust in collective attitudes and values held by individuals in the community.

#### **4.3.2 Stakeholders' participation in preparation of input requirements**

When respondents were required to provide information regarding their involvement in the preparation of farmers' input requirement the findings in Table 11 indicate that out of 17 input traders interviewed only 2 (11.8%) reported to be involved while the rest 15 (88.2%), reported that they are not used to being involved. Out of 50 farmers who were interviewed, only 10 farmers (20%), reported that they used to be involved while the rest are not used to be involved. Out of 9 extension workers interviewed, 7 (88.2%), reported that they used to be involved.

**Table : Stakeholders' involvement in the preparation of requirements (N= 76)**

Response	Input traders (n=17)		VEOs (n =9)		Farmers (n=50)	
	Number	Percentage	Number	Percentage	Number	%
Yes	2	11.8	8	88.9	10	20.0
No	15	88.2	1	11.1	40	80.0
Total	17	100.0	9	100.0	50	100.0

Although it was reported that the district agriculture office compiled input requirement each season, it is implicit from the above information that the data collected are not reliable because users of inputs (farmers) and distributors of inputs (traders) are not

involved in preparing these requirements. Poor stakeholders' involvement therefore has been found to be one of the sources of tension in the implementation of the privatization policy. This results into low market of agricultural inputs which eventually discourages private sector participation in the inputs business.

Poor stakeholders' involvement indicated in this study is in contrast with the Tanzania government policy which stated clearly that, people should be involved in the development process as this usually results in ownership and sustainability of any development programmes. It also insisted that if people are not well involved it often discourages the communities to implement the programmes (URT, 2003).

Maeda (1976) reported that the Tanzanian Government as the main force to implement rural development process through its policy, guidance and support, stresses the need for direct involvement of people in planning and carrying out social, economic and political activities of the local communities. This is to enhance farm incomes and reduce food insecurity, thereby contributing to reduction of rural poverty. As of now the majority of development agents insist that development interventions should start from the grassroots level.

#### **4.4 Subsidies on agricultural inputs**

This variable was selected to understand whether the existing policy on reintroduction of subsidies on agricultural inputs had any influence on effective participation of the private sector in delivering agricultural inputs to smallholder farmers.

Gregory and Bomb (2006), reported that through liberalization and privatization efforts, many countries have removed price and marketing controls and the private sector has

made significant inroads. However, there is a lingering fear in the minds of policy makers that the private sector is not capable of supplying inputs in a cost-effective manner, and therefore, the government should intervene directly in the marketplace. There are therefore pockets of interventions and unpredictable involvement by government or donor agencies in many countries in SSA.

#### **4.4.1 Reintroduction of subsidies on agricultural inputs**

The Tanzania government reintroduced agricultural subsidies in 2003, in selected areas of the country. The main purpose was to increase smallholder farmers' affordability to agricultural inputs to promote the use of fertilizer for soil fertility improvement and land productivity. In the study area, the programme started in 2004/2005 season.

##### **4.4.1.1 Fertilizer distribution**

The findings in Table 12 indicate that in 2004/2005 crop season only 200 tons of Urea were supplied out of the total requirement of 4500 tons which was only 4.67% of the total requirement. Other types distributed includes: CAN 395 tons instead of 1500 tons (26.3% of the requirement); TSP 135 instead of 175 tons (87.4%) and NPK 994 tons instead of 600 tons (165%) of the total requirement. Neither DAP nor SA were distributed. The distribution trend was found to be quite contrary to the actual farmers' inputs requirements in the study area as indicated in Table 13.

**Table : The the distribution of subsidized fertilizer in Hai (tons) 2004/5 season**

Year/season	DAP		UREA		CAN		TSP		NPK 20:10:10		Total	
	Req uire ment	Alloc ation	Req uire ment	All ocat ion	Requir ement	Alloc ation	Requir ement	All oca tion	Requir ement	Alloc ation	Requir ement	Alloc ation
2004/05	-	-	4500	200	1500	395	175	153	600	994	6775	1742
2005/06	150	31.25	4000	868	1000	156.86	100	25	250	27.17	6100	1119.
2006/07	200	95	4500	1750	1200	184.8	150	116.7	250	57.6	6300	2204.1
Price/5		17,000/=		17,000/=		17,000/=		17,000/=		23,200/=		

0kgs  
bag in  
Moshi  
station

**Table : Distribution of respondents based on input requirement (N=50)**

Type of input	Extent of input requirement									
	Very high		High		Average		Low		Not used	
	No.	%	No.	%	No.	%	No.	%	No.	%
<b>(Fertilizer)</b>										
UREA	40	80.0	8	16.0	1	2.0	1	2.0	0	0.0
TSP	1	2.0	2	4.0	5	10.0	7	14.0	35	70.0
DAP	0	0.0	0	0.0	0	0.0	4	8.0	46	92.0
CAN	4	8.0	0	0.0	3	6.0	5	10.0	38	76.0
SA	15	30.0	4	8.0	15	30.0	11	22.0	5	10.0
FYM	26	52.0	3	6.0	15	30.0	4	8.0	2	4.0
<b>Improved seeds</b>	45	90.0	5	10.0	0	0.0	0	0.0	0	0.0
<b>Agrochemicals</b>										
Storage pesticides	40	80.0	5	10.0	0	0.0	2	4.0	5	10.0
Field pesticides	5	10.0	2	4.0	0	0.0	38	86.0	5	10.0

The findings in Table 13 indicate the extent to which farmers require different types of inputs. In this table the term “very high” means that the product is required to the extent that even if it is not available in the area it can be found elsewhere; “High” means that the product is required but can only be bought if is available in the area; “Low” means that the product is required but it can only bought if forced by a certain situation e.g. outbreak of pest. “Average” means that the product can either be used or not. “Not used” means,

the products is not required.

The findings indicate that Urea was mostly required by farmers followed by SA. This indicates that other types of fertilizer which were allocated as subsidies will obtain low response in the side of the farmers. Low response of farmers to procure the allocated stock discourages the participation of inputs retailers to be involved in the distribution of subsidized fertilizer and seeds. For dishonest traders, they will use the opportunity to sell subsidized inputs at commercial prices in high demand areas.

Low amount of Urea allocation which is mostly required by farmers implies failure of the government to meet farmer's input requirement due to financial budgeting. IFDC (2003), share the same view that subsidy programs are costly to administer. The state-run programmes or state enterprises that often implement them are governed by "non-market" rules, and their performance is likely to be sub-optimal. A common example of this is late or unreliable delivery of fertilizer which can significantly reduce the yield effect of the fertilizer provided.

These findings also indicate that large stock of TSP allocated as compared to urea (Table 13) has mixed implications on the side of the farmers. For example, a respondent in Shirinjoro village reported that "in this village the majority of us use Urea; so why should they bring other types of fertilizer which are not familiar to us in large amounts?" According to personal discussion with some farmers, they had a feeling that the importers or wholesalers use the opportunity of the government subsidies to make sales of old and low demanded stocks of fertilizer and seeds. There is also a possibility that dishonest dealers might be using the opportunity to manipulate the sales of subsidized inputs at commercial prices in high demand areas to make profit. Based on these mixed feelings,

farmers in some areas showed low response in exploiting the benefits of privatization policy for fear that other types of fertilizer might destroy their soil.

Pender *et al.* (2004), share the same view that subsidies for certain types of fertilizers may damage the soil by depleting certain nutrients or causing soil acidification. More generally, fertilizer subsidies have been financially unsustainable, and “have helped bring some public treasuries near bankruptcy.”

In the second year of 2005/2006, 868.03 tons of Urea were distributed out of the total requirement of 4000 tons. This was 21.7% of the total requirement; DAP was 31.25 tons instead of 150 tons (20.8% of total requirement); CAN 156.86 tons instead of 1000 tons (15.67% of the requirement); TSP 25 tons instead of 100 tons (25%) and NPK 27.17 tons instead of 250 tons (10%) of the total requirement. SA was not distributed this season. This shows that in this season, the distribution was adjusted with a little increase in Urea and decreased in other types of fertilizer regardless of the fact that the requirements remain almost the same.

In the third year of 2006/2007, 1,750 tons of Urea were supplied out of the total requirement of 4000 tons (43.75% of the total requirement); DAP was 95 tons instead of 200 tons required (47.5%); CAN 184.8 tons instead of 1200 tons (15.4% of the requirement); TSP 116.7 tons instead of 150 tons (77.8%) and NPK 56.6 tons instead of 250 tons (22.6%) of the total requirement. Although the amount of Urea allocation in the second and the third season was increased but the increase was below 50% of the total requirement indicating deficit. However, this increase might be attributed by the experience gained by the government.

According to Valerie (2006), effective demand for fertilizer is based on farmers' perception of fertilizer response, which may differ from the response observed by scientists. Hence, potential demand can be increased through agricultural research that identifies more fertilizer responsive crop varieties and land husbandry practices that increase fertilizer efficiency and reduce production risk. Increases in effective demand require transmission of the knowledge about fertilizer response to farmers, along with the skills to use it efficiently on their own farms. Failure to translate the economic potential of fertilizer use (identified through research trials and financial analysis) into effective demand at the farm level appears to be a major constraint to increased fertilizer demand.

Improving farmers' perceptions of fertilizer profitability will increase effective demand, but so long as output price variability remains high, risk-averse behavior will keep farmers at a level of demand that is lower than what it would be in a more stable price environment. Hence, government, in collaboration with stakeholders, needs to identify the types of public goods and policies most likely to diminish the price variability in a given situation (this may be infrastructure development in some cases, storage in others, or food aid in yet others).

Kherallah *et al.* (2002), commented that fertilizer subsidies are very hard to target; benefits have generally gone to the relatively well-off farmers or those with high cash incomes. Ellis (1992), gives the following reasons for its occurrence: Firstly, wealthy clients are in a position to pay the 'under the-table' costs of acquiring inputs supplies; input delivery is linked to state credit provision, to which wealthier farmers have easier access; and bureaucratic procedures for delivering inputs "tend to favor those who can afford to persist with the paperwork or can pay others to do so.

The finding in Table 14 indicates seven varieties of improved maize seeds which were allocated in the third season 2006/7. Although the data indicating farmers' seed requirement could not be found in the district, but generally the amount allocated was too little. It was reported that every household was supposed to get only 10 kgs of seeds. Regarding the varieties, it was claimed that some varieties e.g. Tuxpeno were not familiar to farmers. When the District Crops Officer was required to respond on the issue of the type of fertilizer and seeds varieties, he said the aim was to promote the use of new types fertilizer and seeds. However, the study revealed that no recent fertilizer and seeds trials or demonstration plots were established in the District purposely to increase farmers' awareness of different varieties of fertilizer and seeds.

**Table : Distribution of improved maize seeds in tons for the season 2006/2007**

Year/season	Type or variety of seeds distributed					
	Panner 6549	Seed Co	Tuxpeno	DK	Hybrid	Hybrid
2006/07		627		8031	513	515
Total amount (tons)	72	25	25	20	8	3

Generally, the study revealed that, the implementation of the reintroduction of subsidized inputs in the study area is very challenging to both farmers and local input traders. The provision of a subsidy replaces some commercial fertiliser sales, so that the incremental fertiliser use resulting from the subsidy is equal to the total quantity of subsidised fertiliser less the 'displacement' of commercial sales by subsidised sales. For those input traders who get the opportunity to sell subsidized fertilizers can easily out bid the other dealers who are selling fertilizers at commercial prices. The costs of holding unsold stock are very high, and this makes the input business very difficult on the side of local retail traders. This challenge frustrated some of the local input retailers leading to discouragement and eventually withdrawal from doing input business.



IFDC (2003), and Jayne *et al.*(2003), share the same views that fertilizer subsidy programs impede the emergence or effective operation of the private sector input marketing system. Subsidies provided by state-run programmes or enterprises take business away from private traders. This discourages private input traders from participating in fertilizer marketing and reduce farmers' overall access to fertilizer instead of promoting it. This idea was supported by Gregory and Bomb (2006), who reported that once the farmers know that there is a subsidy, they justifiably refuse to buy fertilizers at the full price, and the fertilizer dealer has to incur losses in carryover stocks for a year because fertilizer use is seasonal. Such pronouncements not only produce an adverse impact at the micro level (dealers) but also affect import planning at the macro level.

Also Mlambiti (1994), commented that when the government formulates policies that discourage investments by the private sector when the rural sector is mostly privately oriented in their behavior, such a policy becomes a big obstacle to the development of the rural economy. Eric *et al.* (2006) reported that experience in Africa, to date, has shown few if any subsidy schemes designed to promote increased input use that are reliably cost-effective and free of undesirable social, political, or institutional side effects. Yet the siren call of subsidies continues to be hard to resist; they are politically attractive, seem easy to implement, and the problems they are intended to address remain compelling at both the national and international levels.

Gregory and Bomb (2006), reported the 2003 situation in Tanzania that because the local dealers were not able to sell their product in late 2003 and early 2004, they did not order supplies from the wholesalers and importers, and importers did not import adequate fertilizers needed for topdressing of the short rains crop. By the time the government finalized its plan, it was too late to get an adequate and timely supply of fertilizers in the

country. Likewise, the Government of Madagascar announced in 2004 that it would import fertilizers for direct distribution. Naturally, the private sector did not import sufficient fertilizers, and the government could not get funding to import fertilizers, thus farmers suffered from fertilizer shortages. Not only did the governments send wrong signals but also the donors and nongovernmental organizations (NGOs) contributed to the uncertain policy environment by distributing free inputs. Fertilizers received under Kennedy Round 2 (KR2) have also created problems for the private sector in Uganda, Tanzania, Mozambique, and Madagascar. Fertilizers under KR2 are required to be sold at one-half free on board (f.o.b.) price, which is significantly lower than the price charged for commercial imports. Any dealer who can obtain KR2 fertilizers can easily out bid the other dealers who are selling fertilizers at full prices.

#### **4.5 The Quality of inputs distributed to smallholder farmers**

In a private sector-led input marketing system, one of the critical roles of government is to protect the interests of consumers and the general public by formulating and enforcing a legal and regulatory framework regarding quality, standards and measures, safety in use and disposal of inputs, and business ethics (Gregory and Bomb, 2006). In many countries in SSA including Tanzania, there is no regulatory framework which exists for fertilizers. In other countries, where fertilizer laws exist, the enforcement of those laws is inadequate.

Small number of input shops in the study area resulted to a big wave of unauthorised input vendors mushrooming in the rural areas during the peak season selling fertilizer and seeds. It was reported that most of these traders have been selling their products in competitive prices among themselves and with authorized dealers. It is obvious that, because they don't pay any taxes and house rent, they sell their products at lower prices compared to

authorized ones. They also win the market due to their flexibility in repackaging their products to capture a wide range of customers. In comparison, the authorised input dealers are outbided by unauthorized input vendors in sales due to the above facts regardless of the fact that they were reported to sell outdated and poor quality products to farmers.

The report from the District Crop Officer indicated that there is no regulatory system guiding the procurement and distribution of agricultural inputs to smallholder farmers. Lack of regulatory system contributes to encourage unauthorized input vendors and discourages the authorised dealers to enter the business. It is implicit from this observation that, if the number of unauthorized input vendors exceeds that of authorized ones, the efficiency and quality of agricultural input services provided to farmers will be low. This will lead to poor adoption of improved technology which eventually lowers the size of input markets and discourages new traders to enter the inputs business due to low profitability.

#### **4.5.1 Farmers experience on fake/expired inputs**

The findings indicate that more than 95% of the respondents reported that, although the unauthorised input traders are helpful in the remote areas where there are no shops, but most of these traders are dishonest and sell poor quality and outdated products to smallholder farmers. This concurs with Gregory and Bomb (2006), who reported that in 2000, Nigeria faced a serious problem of adulteration and mislabeling of products. Mixtures of sand and urea were sold in NAFCON bags (IFDC *et al.*, 2001). In that same year, in Malawi, more than one million liters of expired pesticides were available for sale in retail shops. Also many retailers sell fertilizers from open bags in small quantities of

one, two, or five kilograms. Because fertilizer is hygroscopic, such practice can lead to caking and reduced usefulness of fertilizers.

When respondents were asked to give response on the extent to which they experienced the problem of expired or fake inputs, the majority (90% said that they experience this problem several times. When asked which action they took, they said they did not take any action because input vendors neither provide receipts nor have permanent premises to be found. Some farmers who buy inputs from authorised dealers also said they do nothing because they buy inputs in small quantities and the average distance travelled to procure inputs is about 20-30 kilometers (km). Under normal circumstances, in a village where farmers must travel 20–30 kilometers to buy a bag of fertilizer or 10 kgs of maize seeds, one cannot expect poor farmers to go back to claim for expired seeds. A respondent said “input traders are only interested in our money not our problems, you may travel 20 km to claim for expired seeds and you end up losing your time and money”. This implies that smallholder farmers have no protection against unscrupulous input dealers and the majority of them have despaired.

Nkonya *et al.* (2001) have made observations similar to the observations made in this study. They reported that in some cases input buyers fail to verify quality of inputs. This problem is common for products whose attributes are not easily verified. Sellers would take advantage of buyers’ failure to verify quality by selling poor quality goods at price equivalent to or higher than the price for better quality goods. In Uganda and elsewhere in Africa, it is common to sell expired agrochemicals and seeds. For instance, farmers interviewed reported that they bought agrochemicals and seeds, which they suspected were either expired or adulterated. Some unscrupulous input traders go to the extent of selling unimproved seeds by just dressing them with pinkish chemicals like potassium permanganate that resemble lindane dust, the genuine chemical used for dressing

improved maize seeds by USP. About 10% of importers reported that they had received complaints about poor quality. Over 35% of wholesalers and 29% of retailers had received complaints over the quality of their products. The proportion of importers receiving complaints about quality, having measurement disagreements, and the frequency of complaints is the smallest, presumably because importers own large reputable businesses. Importers have the added incentive of preserving and promoting their image by supplying high quality products. Being the most educated, importers are better able to investigate and verify quality attributes of their products easier than retailers and wholesalers.

According to literature, in private sector-led input marketing system, one of the critical roles of government is to protect the interests of consumers and the general public by formulating and enforcing a legal and regulatory framework regarding quality, standards and measures, safety in use and disposal of inputs, and business ethics. In Tanzania, no regulatory framework exists for fertilizers.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Overview**

This chapter provides the summary of the results, the major conclusions and major recommendations from the results of the study on factors contributing to low participation of the private sector in delivering agricultural inputs to smallholder farmers in Hai District, Kilimanjaro Region, in northern Tanzania.

#### **5.2 The summary of results**

The results from this study indicated several factors which have contributed to low participation of the private sector in delivering agricultural inputs to farmers. These include: the general characteristics of input businesses, input traders, farmers and extension workers. Poor involvement of key stakeholders in the privatization of input supply services, reintroduction of subsidies on agricultural inputs and lack of regulatory system to protect farmers and input traders against unscrupulous dealers were also learned to be one of the major limiting factors.

The nature of input businesses, their location and limited number of input shops associated with poor infrastructure, was found to contribute to the limited accessibility of inputs to the majority of smallholder farmers in remote areas. Also inefficiency and quality of services offered to customers (farmers) as a result of the nature of some of the businesses contributed to low market of agricultural inputs. The majority of input traders were found

to have been lacking experience and formal training in either agricultural input or financial management. Therefore, lack of technical knowledge on agricultural inputs and market management, together with financial constraints and seasonability of the business, was among the factors identified to discourage their effective participation into the business.

Lack of farmer training in modern production methods and proper utilization of agricultural inputs was found to be a serious problem in the study area. This was found to be highly associated with poor extension services. Although the majority of VEOs had the necessary qualification and specialization to provide extension services to farmers, the study revealed that there was poor contact between extension workers, farmers, and input traders. This was found to be contributed by extension workers' attitude associated with low motivation, lack of working facilities, poor infrastructure, and lack of good communication techniques. Poor farmers' knowledge therefore affects the adoption of improved agricultural technologies leading to small size of input market which eventually discourages private sector participation in inputs business.

It was also revealed that the top down approach used during the privatization of agricultural inputs services has contributed to this low participation. Stakeholders at grassroots' level were not given the opportunity to take active part to plan and make decisions regarding the policy. Although they were involved in the implementation phase, but this was passive participation as they participated by being told what has been decided or had already happened. Poor awareness of key stakeholders on the benefits and consequences of implementing the privatization policy resulted into low participation of the private sector in exploring the benefits of the policy.

The reintroduction of agricultural subsidies by the government in 2003 was, according to this study, found to frustrate both smallholder farmers and the majority of local input retailers. On the side of farmers, it was learned that the amount of inputs distributed to farmers was very small as compared their requirement. The type of fertilizers and seeds allocated were also found to frustrate the majority of farmers because it did not consider their preference. Because of this, only the well-off farmers or those with high cash incomes benefited from subsidized inputs. On the other side, fertilizer subsidy programmes hinder the emergence and effective operation of the private sector input marketing system. Subsidies provided by the government take business away from private traders and discourage private input retailers from participating in inputs marketing.

Lack of legal and regulatory framework regarding quality, standards measures, safety in use and disposal of inputs was another major limiting factor. Lack of regulatory system was found to contribute in encouraging unauthorized input vendors into the input business. The majority of these people were found to be dishonest and they usually take advantage of farmers' failure to verify the quality of inputs to sell poor quality goods at prices equivalent to or higher than the prices for better quality products. This lowers the efficiency and quality of agricultural input services provided to farmers leading to poor adoption of improved agricultural technology and eventually discourages private sector participation in the input business.

### **5.3 Conclusion**

The following are the major factors contributing to low participation of the private sector in delivering agricultural inputs to farmers which were determined in this study:



- i. Small size of input market resulting from the general characteristics of input businesses, traders, extension workers, and farmers.
- ii. Poor implementation of the privatization policy resulting from poor involvement of stakeholders (input traders, extension workers and farmers) in the processes of privatizing input supply services.
- iii. Uncertain government policy environment. For example the reintroduction of subsidies on agricultural inputs which entails intervention of the government in the marketing of inputs in spite of this role being left to private sector.
- iv. Lack of regulatory system which is capable of controlling unauthorized input vendors from selling poor quality inputs to farmers and frustrate the input marketing system.

#### **5.4 Recommendations**

Although specific recommendations were given for some individual sections in the separate studies, the following is a summary of major recommendations.

- i. Improvements in rural roads (feeder roads), railways, godowns, and communication systems to stimulate active participation of the private sector in the input business. This will also promote farmers' adoption of agricultural technology through timely availability of inputs.
- ii. To build the capacity of local input traders through regular trainings on issues related to agricultural inputs and market management for their effectiveness. This is especially true for the input retailers who, according to this research, are less experienced and others are new in the agricultural input-trading sector. Training local input traders can enable them to provide

efficient and quality services to make farmers want to adopt improved agricultural technologies. This will eventually expand the market of inputs in the rural areas and new traders will be encouraged to enter the business.

- iii. To design an effective mechanism to operate subsidy programmes to benefit targeted poor farmers but at the same time without undermining the profitability of private rural stockists.
- iv. To provide regular training for extension workers who normally lack good extension techniques and methodologies to interact with smallholder farmers and other agricultural service providers. This followed the fact that many extension officers have been taught only what to tell small holder farmers, but not how to tell smallholder farmers to become more capable farm managers of their own enterprises.
- v. To enact and enforce regulations capable of controlling unauthorized input vendors in order to maintain the quality, quantity, nutrient contents, and truth-in-labeling of inputs distributed to farmers. Because the government is no longer a supplier of inputs, it has to assume the responsibility of protecting consumers' interests.
- vi. To reduce the long marketing channels which contribute to high costs of inputs, the government should utilize all opportunities available including the nearby research centers to produce their input requirements domestically. This will reduce the cost of agricultural inputs significantly.

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## APPENDICES

### Appendix : Farmer's semi-structured interview schedule

Name of interviewer.....  
Date of interview..... Interview schedule's No.....  
District .....Division..... Ward.....Village.....

#### 1.0 Respondent's background

1.1 Name of Respondent.....

1.2 Sex: A=Male.....B=Female.....

1.3 HH size: A=2Members, B=3Members, C=4 Members, D=5Members, E=6 Members, F=>6 Members.

1.4 How many children are in school? .....

1.5 What is the size of your farm? (Acre).....

1.6 Type of crop grown:

.....  
.....

#### 1.7 Education level

- A. University education ( )
- B. Secondary education ( )
- C. Primary education ( )
- D. Not attended school ( )

#### 2.0 Input situation in the district

The following information is needed to understand the current situation of input distribution to farmers in the district

2.1 Do you have input shop/shops in your village? Yes/no

2.2 If no, where do you get inputs during the season?

A. From informal input traders

( )

B. From the Cooperative society

( )

C. From the nearby town center

( )

D. A and B

( )

E. A and C

( )

2.3 If in nearby town, what is the distance to be traveled to buy inputs?

A. 1- 5 Km

( )

B. 5-10 Km

( )

C. 10-15 Km

( )

D. 15-20 Km

( )

E. 20-25 Km

( )

2.4 Is there reliable transport from the village to where you can buy inputs? Yes/no

2.5 Do you normally contact the extension worker before and after procuring inputs from private dealers? Yes/ No?

2.6 If no explain why?

.....  
 .....

2.7 What is the average bus fare from the village to a center where you can buy inputs?

A. Very high

( )

B. High

( )

C. Average

( )

D. Low

( )

E. Very low

( )

2.8 Indicate the extent to which you demand the following types of inputs?

Type of input	Score					
	Very high	High	Average	Low	Very low	Not using it
UREA						
TSP						
DAP						
CAN						
Farm Yard Manure						



SA						
<b>Seeds</b>						
Improved maize seeds						
Local seeds						
<b>Pesticides</b>						
For storage						
Field pesticides						

2.9 Based on local prices, do you afford to buy the recommended inputs? Yes/no

2.10 If no what do you do as an alternative?

- A. Use locally available inputs ( )
- B. Use bellow recommended rates ( )
- C. Buy in credit ( )
- D. 1 and 2 ( )

2.11 Are you aware of subsidized inputs in your village? Yes/no

2.12 If yes how did you obtained the information?

- A. Through extension worker ( )
- B. Through village leaders ( )
- C. Through friends ( )
- D. Notice boards ( )
- E. From district officials ( )

2.13 How many times that subsidized inputs were bought in your village since the year 2004?

- A. Once ( )
- B. Twice ( )
- C. Thrice ( )

2.14 Which types of inputs were brought in your village?

- A. Fertilizer ( )
- B. Maize seeds ( )
- C. Pesticides ( )
- D. A and B ( )
- E. B and C ( )
- F. All A, B, and C ( )

2.15 What is your comment on subsidized price of fertilizer as far as your situation is concerned?

- A. Very high ( )
- B. High ( )
- C. Average ( )
- D. Low ( )
- E. Very low ( )

2.16 Are the subsidized inputs brought to you based on your preference/requirement?  
Yes/no

2.17 Do you feel that you benefit from subsidized fertilizer? Yes/no

2.18 If no, what are the limitations?  
.....  
.....

2.19 Have you seen any follow up made to ensure proper distribution of subsidized inputs?  
Yes/no

2.20 Are you satisfied by the system used to distribute subsidized fertilizer in the village?  
Yes/no

2.21 If no, suggest how should it be distributed to meet the intended objectives?

- A. Distributed as per farmers requirement ( )
- B. Involvement of farmers in the planning process ( )
- C. Involvement of VEOs in the planning processes ( )
- D. A and B ( )
- E. B and C ( )
- F. All A, B and C ( )

2.22 Have you seen any follow up made to ensure proper distribution of subsidized inputs?  
Yes/no

2.23 Have you ever experienced the problem of expired/fake inputs? Yes/no

2.24 If yes, how many times?

- A. Once ( )
- B. Twice ( )
- C. Thrice ( )
- D. Several times ( )

2.25 What action did you take in such kind of a problem?

- A. Take no action ( )
- B. Report to the seller and refunded ( )
- C. Undecided ( )
- D. Report to the police ( )

2.26 How are you affected by the dishonest behavior of local traders in your area?

- A. Fear to buy inputs in the village ( )
- B. Fear to adopt new products ( )
- C. Confusion due to differing prescription ( )
- D. A and B ( )
- E. A and C ( )
- F. B and C ( )
- G. All of A, B, and C ( )

2.27 Do you get regular trainings on modern farming and chemical handling in your village? Yes/no

2.28 If yes, at which period do you get the training?

- A. Before land preparation ( )
- B. Before or after the 1<sup>st</sup> weeding ( )
- C. Before harvesting ( )
- D. A and B ( )
- E. A, B and C above ( )

2.29 Are you satisfied with technical capability of local traders in delivering inputs?  
Yes/no

2.30 If yes, at what extent?

- A. Highly satisfied (    )
- B. Satisfied (    )
- C. Unsatisfied (    )
- D. Highly unsatisfied (    )

2.31 What are your priorities in spending money after harvesting?

<b>Expenditure</b>	<b>Priority</b>					
	1st	2 <sup>nd</sup>	3rd	4th	5th	6 <sup>th</sup>
1. Drinking brew						
2. School expenses to the children						
3. Agricultural inputs for next season						
4. House repair/ Building						
5. Ceremonies						
6. Paying debts						
7 Savings						

**Appendix : Input trader’s semi-structured interview schedule**

Name of interviewer.....  
Date of interview..... Interview schedule’s No.....  
District .....Division..... Ward.....Village.....

**I.0 Background of respondents**

1.0 Name of Respondent: .....

1.1 Status of the respondent:

- A. Owner of the shop ( )
- B. Employee ( )
- C. Cooperative manager ( )
- D. Family member ( )

1.2 What is your education level?

- A. University ( )
- B. Secondary ( )
- C. Primary ( )
- D. Adult ( )
- E. None ( )

1.3 What is your qualification background?

- A. Agriculture ( )
- B. Livestock ( )
- C. Agriculture and livestock ( )
- D. Other (Specify) ( )
- E. None ( )

1.4 For how long have you being doing this business?

- A. 1-2 Years ( )
- B. 2-3 Years ( )
- C. 3-4 Years ( )
- D. 4-5 Years ( )
- E. Above 5 Years ( )

1.5 Which activities were you doing before starting dealing with inputs?

.....  
.....1.6

Together with input trade, which other income generating activities are you doing?

.....  
.....

**2.0 Background of the employees in the business**

2.1 As the owner/cooperative officer, have you employed a shopkeeper? Yes/no

2.2 If yes, what is the level of education of your shopkeeper?

- A. University level ( )
- B. Secondary education ( )
- C. Primary education ( )
- D. Adult education ( )
- E. Not attended school ( )

2.3 What is his/her professional qualification?

- A. Agriculture ( )
- B. Livestock ( )
- C. Agriculture and livestock ( )
- D. None) ( )

2.4 For how long have you being with him/her in this business?.....

**3.0 Background of the business**

3.1 Name of the shop.....

3.2 Location.....

3.3 Category of the business

- A. Importers ( )
- B. Whole sale ( )
- C. Middlemen ( )
- D. Retailer ( )

3.4 Do you have the sub branches for this business? Yes/no

3.5 If no, why?

- A. Lack of trade finance ( )
- B. Lack of supervision ( )
- C. Seasonality of the business ( )
- D. A and B ( )
- E. A and C ( )
- F. A, B, and C above ( )

3.6 Do you have a bank account in any of the available banks Yes/No?

3.7 If yes in which bank

3.8 Do you keep records for your business? Yes/ No?

**4.0 Capacity building of input traders**

4.1 Have you attended short courses related to input trade? Yes/no

4.2 Do extension officers/input companies organize regular trainings on inputs? Yes/no

4.3 Do you have any collaboration with research centers in issues related to inputs?

4.4 Do you have access to financial support from credit/government institutions? Yes/no

4.5 If no, why?

.....  
.....

4.6 Are you aware of the National Input Fund? Yes/No

4.7 If yes, how did you benefit from the National Input Fund? Yes/no

.....  
.....

**5.0 Involvement of input traders in the process of privatization**

5.1 Were you involved in the process of privatizing input delivery services? Yes/No

5.2 If yes, in which phase have you involved?

.....  
.....

5.3 In which ways do you collaborate with the government in your business?

- A. Joint planning of activities ( )
- B. Joint execution of activities ( )
- C. Sharing information ( )
- D. Sharing resources ( )
- E. No collaboration ( )

**6.0 Understanding farmer's input requirements**

6.1 Do you regularly visit farmers in their field to see their farming practices? Yes/No

6.2 Do you collaborate with research and extension services in your business? Yes/no

6.3 How are you involved in preparing farmer's input requirement?

.....  
.....

- 6.4 How do you know farmer's requirements in terms of inputs each season?
- A. Experience of the seasons ( )
  - B. Frequency of farmers enquiry ( )
  - C. Asking other dealers ( )
  - D. A, B, and C above ( )
  - E. Guessing ( )
- 6.5 Do you manage to fulfill farmers input needs in your area? Yes/no
- 6.6 If no, why?
- A. No clear way of understanding farmers needs ( )
  - B. No capital to buy enough stock ( )
  - C. Unreliability of farmers to buy inputs ( )
  - D. A and B ( )
  - E. B and C ( )
  - F. All A, B, and C ( )
- 6.7 Where do you procure the products (inputs) which you keep in your shop/trade?
- A. Import ( )
  - B. Whole sellers ( )
  - C. Medium scale dealers ( )
  - D. Others (Specify) ( )
- 6.8 Have you ever experienced farmers' claims on expired/fake inputs? Yes/no
- 6.9 If yes, how many times?
- A. Once ( )
  - B. Twice ( )
  - C. Thrice ( )
  - D. Several times ( )
- 6.10 In case of such a problem how do you help such farmers?
- .....
- .....
- ....
- 6.11 Where do you store your extra products?
- A. Warehouse ( )
  - B. In shop ( )
  - C. Outside in shade ( )
  - D. Small room ( )
  - E. No space for storage ( )
- 6.12 Do you have your own transport? Yes/no
- 6.13 How do you supply inputs to far remote farmers?
- A. Using informal dealers ( )
  - B. They follow the service ( )
  - C. Use of extension worker ( )
  - D. Using public transport ( )
  - E. Use my own transport ( )
- 6.14 Why other traders fail to be involved on input business in rural areas?
- A. Lack of capital ( )
  - B. Knowledge on input ( )
  - C. Seasonality of the business ( )
  - D. A and B ( )
  - E. A and C ( )
  - F. A, B, and C ( )

## 7.0 Subsidies on Agricultural inputs

7.1 Are you aware of government subsidies on agricultural inputs? Yes/no

7.2 If yes, how did you get the information?

- A. Letter from government officials ( )
- B. Friends ( )
- C. Notice board ( )
- D. Meeting ( )
- E. Extension officer ( )

7.3 Which types of subsidized inputs distributed by the government in your area in the past two seasons? (2004/05 and 2005/06)

- A. Fertilizer ( )
- B. Maize seeds ( )
- C. Pesticides ( )
- D. Fertilizer and Maize seeds ( )
- E. Fertilizer and Pesticides ( )
- F. Maize seeds and Pesticides ( )

7.4 How many times did you get subsidized inputs in your area up to 2005/06?

- A. Once ( )
- B. Twice ( )
- C. Thrice ( )
- D. More than three times ( )

7.5 Who is the target group for the subsidized inputs?

- A. Smallholder farmers ( )
- B. Large scale farmers ( )
- C. Both smallholder and large scale farmers ( )
- D. Anybody in the area ( )

7.6 Are you involved by the government in issues related to subsidized inputs? Yes/no

7.7 If yes, in which phase have you being involved?

- A. Problem identification ( )
- B. Planning ( )
- C. Implementation ( )
- D. A and B ( )
- E. A , and C ( )
- F. B and C ( )
- G. All A, B, and C ( )

7.8 Have you ever being selected to distribute subsidized inputs? Yes/no

7.9 If no why?

- A. Financial problems ( )
- B. Storage problems ( )
- C. Did not get information ( )
- D. Not interested ( )
- E. Price condition ( )

7.10 What weaknesses have you observed in the distribution of subsidized inputs?

- A. Poor involvement of stakeholders in planning ( )
- B. Not meeting farmers requirement ( )
- C. Mixing subsidized and unsubsidized inputs in the same market ( )
- D. A and B ( )
- E. A and C ( )
- F. A, B, and C above ( )

7.11 What is your recommendation on how input supply services can be improved in your area?

.....  
.....  
.....



**Appendix : VEOS semi-structured interview schedule**

Name of interviewer.....  
Date of interview..... Interview schedule's No.....  
District .....Division..... Ward.....Village.....

**1.0 Background of respondents**

1.2 Name of Respondent: .....

1.3 Professional qualification

- A. Masters degree .....
- B. Bachelor degree .....
- C. Diploma .....
- D. Certificate .....

1.4 Specialization

- A. Agriculture .....
- B. Livestock .....
- C. Agriculture and livestock .....
- D. Other (Specify) .....

1.5 Experience of work

- A. 1-2 Years .....
- B. 2-3 Years .....
- C. 3-4 Years .....
- D. 4-5 Years .....
- E. More than 5 years .....

**2.0 The involvement of extension officers in issues related to input**

The following information is needed for understanding the participation of agricultural extension officers in issues related to inputs after privatization of input supply services

2.1 Have you involved in the process of privatizing input supply services? Yes/no

2.2 If yes, in which phase have you involved?

.....  
.....

2.2 .1 How have you involved?

.....  
.....

2.3 How are you involved by the district in preparing farmer's input requirements?

- A. Filling special forms ( )
- B. Attending workshops/seminar ( )
- C. 1 and 2 above ( )
- D. Not involved ( )

2.4 Do local traders in your area have the habit of consulting you for advice? Yes/no

- 2.5 If no, what could be the reason?
- A. Negligence ( )
  - B. No clear guideline ( )
  - C. Some are retired agricultural officers ( )
  - D. Dishonesty ( )
  - E. A & B ( )
  - F. A, B, and C ( )
  - G. All of the above ( )
- 2.6 Do farmers consult you for advice before and after buying inputs? Yes/no
- 2.7 If no, why?
- A. Time serving ( )
  - B. Get advice from fellow farmers ( )
  - C. Negligence ( )
  - D. Own confidence ( )
- 2.8 What are your roles as far as input distribution and utilization is concerned?
- A. Conduct field trials ( )
  - B. Conduct field days ( )
  - C. Provide technical guidance to farmers ( )
  - D. Make field demonstrations ( )
  - E. A and B above ( )
  - F. A, B, and C above ( )
  - G. All A,B, C, and D ( )
- 2.9 Based on real situation, do you manage to undertake these roles as expected? Yes/no
- 2.10 If no, why?
- A. Poor cooperation of input traders ( )
  - B. Lack of funds ( )
  - C. Poor participation of farmers ( )
  - D. Lack of clear guidelines for collaborate with private traders ( )
  - E. A and B above ( )
  - F. A, B, and C above ( )
  - G. All A, B, C, and D ( )
- 2.11 Are you involved in monitoring local input traders' activities in your area? Yes/no
- 2.12 If not involved, who monitor the activities of local input traders in your area?
- A. District crop officer ( )
  - B. Tropical Pesticides Research Institutes (TPRAI) officers ( )
  - C. Input distributing companies ( )
  - D. A and B above ( )
  - E. A, B, and C above ( )
  - F. No monitoring ( )
- 2.13 Base on your experience, are local input traders in your area technically capable to deliver inputs to farmers? Yes/no
- 2.14 If no, what do you recommend?
- A. Stopping them to deliver services ( )
  - B. Provide regular trainings ( )
  - C. Making close supervision ( )
  - D. Establish strong collaboration ( )
  - E. B and C above ( )
  - F. B, C and D above ( )
- 2.15 Are you aware of government subsidies on agricultural inputs? Yes/no

2.16 If yes, how did you get the information?

- A. Letter from district agriculture office ( )
- B. Local leaders ( )
- C. Office mates ( )
- D. Notice board ( )
- E. Official meeting ( )

2.17 Who is the target group for the subsidized inputs?

- A. Smallholder farmers ( )
- B. Large scale farmers ( )
- C. Both smallholder and large scale farmers ( )
- D. Any person in the area ( )
- E. Not clear ( )

2.18 Are you involved by the district in issues related to subsidized inputs? Yes/no

In which phase have you involved?

- A. Problem identification ( )
- B. Planning ( )
- C. Information giving ( )
- D. A and B ( )
- E. All of A, B, and C ( )

2.19 Based on your experience, does intended target group get the subsidized inputs as expected? Yes/no

2.20 If no, what do you think are the reasons?

- A. Not timely to the season ( )
- B. Very small amount ( )
- C. High price ( )
- D. No clear information ( )
- E. A and B above ( )
- F. A, B, and C above ( )
- G. All of the above ( )