
**A REVIEW OF THE AGRICULTURAL INPUT AND OUTPUT
MARKETS DEVELOPMENT IN MOZAMBIQUE**

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1. INTRODUCTION

1.1 Background

Agriculture drives the Mozambican economy. The sector is largely dominated by smallholder farmers and is a major source of livelihood in the country (World Bank, 2006). Available statistics indicate that agriculture contributes 25 percent to Gross Domestic Product (GDP) and employs 80 percent of the total labor force (African Development Bank, 2008). Development in the agricultural sector in Mozambique has evolved since colonial times to date due to different reasons. The main objective of the Portuguese colonialists was to increase the supply of raw materials to their country and hence targeted the needed investments in Mozambique. The sector was dependent on Portugal for skilled labor supply and suffered brain drain when these Portuguese returned home after independence in 1975 (Howard *et al*, 1998). Soon after independence, the abandoned Portuguese properties were taken over by the government which formed large centralized state farms. The greater part of government investment in agriculture between 1978 and 1982 was channeled towards input purchases for these farms (Population Project, 2001). During the same period, marketing and trade of crops was done by parastatal monopolies but private traders were still allowed to operate in certain areas provided they had been granted monopoly rights. Market margins were however regulated by the government through the Ministry of Internal Commerce (Kyle, 1999).

The civil war which started in 1977 and ended with a peace accord signed in 1992, had a notable impact on the agricultural sector (Skelton *et al*, 2003). The war resulted in widespread destruction of infrastructure which affected both the factor and product markets. During this period, economic growth and food production dropped significantly. Between 1981 and 1986 for example, Howard *et al* (1998) reported that GDP and food production fell by 30 percent, marketed production of maize and rice declined by half and exports declined by 75 percent. The country became almost entirely dependent on food aid because food production levels were not sufficient to satisfy demand. The end of the war overlapped with the beginning of the drought hence there was no time for any recovery measures to be implemented in the agricultural sector. During the war and drought period, food aid constituted a considerable portion of total cereal available in the country. Between 1992 and 1993 yellow maize food aid accounted for 60 percent of cereals but the figure dropped to 15 percent between 1994 and 1995 as a result of increased domestic production of white maize (Donovan, 1996).

Evidence suggests that there has been registered development and growth in both input and output markets after the civil war in 1992 (World Bank, 2006). At the end of the civil war the agricultural sector grew rapidly because farmers were able to return to their land and markets were liberalized through market reforms. The average annual GDP growth rate was 6.2 percent between 1992 and 2003 for agriculture, livestock and forestry sectors and the figure reached a peak of 10 percent in some favorable years. Although the increase in the area under cultivation resulted in growth of the agricultural sector, the total area presently cultivated is significantly small. Only 10 percent of 36 million hectares of arable land is being utilized. The full agricultural potential of the country is therefore yet to be realized. The use of inputs

is still very low and its mainly registered in tobacco (fertilizers) and cotton (pesticides) while the use of improved seed only accounts for 10% of the total small scale farmers and 4-5% of them use fertilizers (MINAG, 2008).

The agricultural growth rate noted above suffered a depression in 2000 due to floods experienced in Mozambique. Floods have a destructive effect on agriculture with additional effects on industries that depend on agriculture through supply or demand links. Mozambique has a high propensity for natural disasters because of its geographical location (World Bank, 2006). FAO (2001) reports that the floods which occurred in 2000 caused extensive damage to the agricultural sector. The hardest hit areas were the southern and northern provinces where about 25 percent of the total planted crop was lost. The report further states that the damage to the agricultural sector was so widespread such that a rehabilitation program required a total of about US\$13 million to support 87,000 flood-affected families in the provinces of Manica, Maputo, Inhambane, Cabo Delgado, Gaza and Sofala. Also the support went to the rehabilitation of the horticulture sector of 4,000 flood-affected families in the provinces of Zambézia, Nampula and Maputo. The program also included restoration of the forestry and wildlife sector and replacement of destroyed fishing gear and equipment of 5,850 artisanal fishermen in order to re-establish fishing production. Initial relief programs after the floods were aimed at providing emergency food aid but were later restructured to provide agricultural inputs in a bid to stimulate agricultural production.

Despite the liberalization of agricultural markets through market reforms after independence, poverty and food insecurity are still prevalent in Mozambique largely because of low agricultural productivity. According to FPAP (2008), agriculture in Mozambique is still characterized by low levels of use of improved input technologies with only 5 percent of the producers in the 3.3 million farms making use of marketed inputs such as improved seed varieties and fertilizers. Investment in such marketed inputs is vital if high agricultural yields are to be achieved. Tostão (2007) argued that Mozambique under invested in its inputs market especially in seeds which determine the maximum yield that can be achieved. Scientists argue that improved seeds can account for 20% increase in yields (Massingue, 2003). This is linked to producers' low effective demand for commercial seed making investment in the seed sector unprofitable. Fertilizer use is also extremely limited at the moment with consumption levels for 2008 having been 22,751 tones (Hammond, 2009).

Historical data available shows that fertilizer usage in Mozambique has always been low. For example during the early 1980s, Mozambicans used 40,000 - 80,000 tons of fertilizer, with most of the fertilizer being on the estates. The figures fell in the mid 1980s because of the civil war. Annual fertilizer usage in 1998 was less than 10,000 tones. This is not surprising considering the fact that Sub Saharan Africa as a whole still lags behind with average intensity of fertilizer use of 9 kg/ha as compared to 86 kg/ha in Latin America and 104 kg/ha in South East Asia (Crawford *et al*, 2005). This is of major concern in view of the fact that soil fertility is continuously declining in the region threatening levels of crop production.

Mozambique is subject to government intervention through implemented policies such as subsidies. The private sector also plays a role although at times its success is negatively affected partly due to government policies. Steps taken by the government to form partnerships with the private sector are important because these partnerships are seen as an engine for growth in the agricultural sector. The CASP (the Annual Conference of the Private Sector) joins private sector and government to review policies and strategies which might help improve business environment.

1.2 Objectives of the Report

The understanding of agricultural input and output markets is essential for improving agricultural productivity and growth. Development of input and output markets is important because farmers are not motivated to increase yields if they are unable to sell their produce. If this occurs, it defeats the objective of intensifying agricultural production which the majority of the population derives its livelihood from. The main objective of this paper is to establish what is known about input and output markets development in Mozambique. The input market study will focus on seed and fertilizer availability, access and utilization with emphasis on identifying key drivers, through review of available literature and other secondary data. Methods of boosting access to these inputs such as direct subsidies and vouchers and input market operations will be discussed and evaluated by looking at the strengths and weaknesses of each. An assessment of these interventions will be made to ascertain the extent to which they have had either a negative or a positive impact on the engagement of the private sector and the ability to achieve social and economic goals, including agricultural productivity. The focal point of the output market study will be the grains markets and will include the documentation of the role played by the state and private sector and the nature of the existing partnerships in the marketing of key inputs and products.

1.3 Organization of the Report

The rest of the paper is organized as follows: Section 2 looks at the evolution of both agricultural input and output markets in Mozambique. Section 3 specifically deals with the inputs market and the key factors driving this market. Similarly, section 4 takes a look at the products markets. In section 5, policies and their implications on the input and output market are dealt with. Existing public- private sector partnerships and their effects are also discussed. The final section, section 6 is a conclusion of the paper.

2. EVOLUTION OF AGRICULTURAL MARKETS IN MOZAMBIQUE

The Mozambican inputs market has evolved over time in response to different factors in its history. This evolution can be traced with reference to existing literature from the colonial era to the current state.

2.1 The Colonial Period

Initially the Portuguese settlers were allocated large pieces of land and native households occupying these designated lands were required to pay tax in the form of produce or labor (Population Project, 2001). These were mostly smallholders practicing subsistence agriculture and using indigenous knowledge such as shifting and cultivation to preserve soil

fertility and select suitable seeds for planting. The Prazo system ended in 1928 and the Portuguese were now the principal agents behind the functioning of agricultural markets. They formed the bulk of the skilled labor while the uneducated Africans were employed as manual laborers. The main focus of agricultural production at the time was to increase the supply of raw materials to Portugal and the government made investments to achieve this objective (Mlay et al, 2003).

2.2 The Immediate Post-Independence Period

After independence in 1975, SEMOC (Sementes de Moçambique Lda), a semi commercial company was established by the government to distribute seed of public varieties as part of a seed assistance program (Walt, 2006). This was intended to provide farmers with seed to boost agricultural production following the war.

Mozambican government have used its power to control agricultural marketing. FRELIMO government monopolized marketing activities by establishing parastatal companies and cooperatives. Agricultural products price control was established (minimum prices and maximum prices) from the production level to retail and the movement of goods were severely restricted (Tschirley, 1998). Even today, the government continues to set producers minimum prices for cotton and tobacco. This means that for almost 500 years of colonial administration and the centralized economy after independence, farmers and traders are accustomed to the centralized marketing system (Tschirley and Santos, 1998).

2.3 The Civil War Period

The civil war between 1977 and 1992 coincided with a series of natural disasters. Two rivers (Limpopo and Incomati) flooded in 1977 and another (Zambezi) in 1978, affecting some of Mozambique's most fertile soils. By 1980 earlier water shortages had turned into a full scale drought affecting 1.5 million people in six of the ten provinces. The 1980 drought lasted for 3 years and was followed by floods in 1984-85 and two other severe droughts in 1986-87 and 1991-92, respectively. This left the country almost entirely dependent on external donors for food aid including agricultural inputs. Instability caused by a combination of the war and recurring natural disasters resulted in low agricultural productivity. The majority of the population depended on food aid for survival because they could not produce since most of the producers (2 million) had been displaced. Barnes (1998) reports that the United Nations had to continuously increase its operations to meet growing demand and had to launch emergency appeals between 1987 and 1992. In all these years, the total money pledged did not cover the total requirements as shown in Table 1. The total amount required to assist the Mozambicans between 1987 and 1992 was slightly above US\$1.5 billion, which is a very substantial figure. Many market infrastructures including rural shops, storehouses, roads and bridges were destroyed during the war constraining agricultural marketing. (Hanlon, 2007).

Table 1: Mozambique Emergency Appeals: 1987–1992

Appeal year	Total requirements US (\$) millions	Total pledges US (\$) millions
1987/88	No dollar value	337442
1988/89	380406	363565
1989/90	361891	323790
1990/91	135889	122263
1991/92	262552	168494
1992/93	447279	315410

Source: Barnes, 1998

2.4 The Post-Civil War Period

After the civil war, agricultural markets were liberalized through market reforms. Liberalization of markets was part of the structural adjustment program which began sometime during the civil war and continued soon after independence. This followed a decade of state controls and the foreign capital inflows in support of structural adjustment averaged US\$ 673.6 million between 1987 and 1993 (Dorosh, Nino and Sahn, 1996). The general infrastructure which is key to well functioning agricultural markets was dilapidated. This negatively affected the delivery of agricultural inputs especially to the more remote areas. The Mozambican government embarked on a number of projects to rebuild the infrastructure and this is still an ongoing process.

Presently, policies and regulations are made by the ministry of agriculture and the private sector is responsible for supplying inputs and products. Agro-dealers in Mozambique lack capital to purchase agricultural inputs, particularly fertilizers and improved seed (Mucavele, 2007). The inputs market suffered a shock during the 2000 floods but has since made remarkable recovery such that crop production in the 2008/09 season was considered excellent by developing country standards.

3. AGRICULTURAL INPUT MARKET DEVELOPMENT IN MOZAMBIQUE

3.1 Types of Input Markets

Three main types of agricultural input markets exist in Mozambique, namely informal markets, formal markets and markets that are relief program based. The informal market, also referred to as the village seed market because of predominantly trading on seed, is set apart from the more formal sector by its lack of regulation and control of seed operations. On-farm seed selections and multiplications are done by farmers who also exchange seed among themselves. The commercial market refers to a formal market which involves seed fertilizer producing companies. Most of the seed produced by these companies is certified. Relief programs following emergency situations like wars and natural disasters are also another source of agricultural inputs in Mozambique. The fourth market, although not very significant

is the seed obtained from international agricultural research centers. This seed is usually of improved variety distributed to farmers for research purposes.

3.1.1 Informal input markets

The grain market is the main source of seed for farmers in Mozambique (Dominguez and Chidiamassamba, 1997). This market is entirely made up of informal seed markets. In these seed markets, farmers rely on their own retained stock or neighbors for locally adapted seed varieties because of the perceived risk associated with purchasing seed from grain markets (Smale et al, 2009). There is a significant presence of village seed markets in Mozambique among smallholder farmers. In fact the village seed market is the foundation of the Mozambican seed market. The most common is the farmer's own seed stock retained from the preceding season's harvest and set aside for use during the succeeding season. Where available, farmers use lowlands with access to water year around to plant food crops and guarantee seed stocks for the following season (Dominguez and Chidiamassamba, 1997) Such farmers may sell or barter the seed to obtain other seeds they might not have been able to retain or purchase. It is therefore critical to estimate the roles of these markets because at the present moment, not much has been done to this effect.

3.1.2 Formal input markets

Liberalization of markets and privatization under the structural adjustment program are believed to be behind the change in the formal agricultural input markets in Southern Africa (Zerbe, 2001). Formal input markets are made up of both public and private institutions. The formal input markets in Mozambique comprise seed and fertilizer companies, Non Governmental Organizations (NGOs) and general relief activities. These are the main sources from which farmers obtain certified seed and agrochemicals. The National Seed Service is the main public institution and its main functions include promoting and protecting seed quality in order to increase national seed productivity. The two major companies making up the private sector are SEMOC and PANNAR but other smaller retailers are present as well (Longley, Dominguez and Devji, 2005). Private seed companies are registered by the National Seed Service and have to adhere to all legislative controls.

3.1.3 Relief input markets

Provision of agricultural inputs through relief programs is aimed at stimulating agricultural productivity following natural and human induced disasters. Smallholder farmers usually depend on retained seed from their own stock as a seed source. Others with the financial means to purchase seed and fertilizer do so from agro dealers. There are however some instances of seed insecurity which render the need for seed relief. Kananji and Phiri (2006) identify four situations where there is a need to access seed from other sources. These are (a) need for new varieties, (b) need for quality seeds, (c) poverty and during emergencies such as wars and (d) natural disasters. Mozambique has experienced different agricultural inputs stresses in its history ranging from wars to natural disasters. These have affected agricultural productivity trends in the country. The Mozambican seed sector was first affected by the war of independence and the subsequent civil war. In more recent history, droughts and floods have been the main factors driving the relief input sector (Walt, 2006).

3.2 The Seed Sub-Sector

3.2.1 Village seed sources

Approximately 70 percent of farmers in Mozambique have been using unimproved local maize seed which has lower yields and is not as tolerant to pests and diseases. Based on survey results by Rohrbach and Kiala (2000), the local informal seed markets were able to meet the annual seed requirements for the 1997/98 season in the study regions. Table 2 shows the percentages of households who secured seed for different crops through the informal markets for the 1997/98 cropping season.

Table 2: Seed from own stock or other farmers for different crops, 1997/98 season (cited by percentage of households)

	Province			
	Tete	Sofala	Zambezia	Nampula
Seed type				
Maize	Own stock- 89 Other farmers- 15	Own stock- 86 Other farmers- 9	Own stock- 31 Other farmers- 24	Own stock- 72 Other farmers- 22
White Sorghum	Own stock- 78 Other farmers- 11	Own stock- 91 Other farmers- 21	Own stock- 52 Other farmers- 35	Own stock- 77 Other farmers- 22
Pearl Millet	Own stock- 67 Other farmers- 17	Own stock- 71 Other farmers- 10		
Groundnut	Own stock- 48 Other farmers- 16	Own stock- 59 Other farmers- 7	Own stock- 19 Other farmers- 33	Own stock- 59 Other farmers- 31
Pigeon pea	Own stock- 68 Other farmers- 11	Own stock- 75 Other farmers- 13	Own stock- 40 Other farmers- 42	Own stock- 77 Other farmers- 23

Source: Rohrbach and Kiala, 2000.

The results give evidence of the strength of the village markets. The data in Table 2 shows that close to 50 percent of the sample farmers sold, battered or gave seed to their neighbors. But this data does not include information of the proportion of farmers who obtained their seed from traders, NGOs and others sources. Although these statistics are somewhat old, they form the basis for the Mozambican government's decision to shift from direct seed distribution to seed fairs which rely to a large extent on the village seed market.

The informal seed market sector contributes substantially to seed requirements not only in Mozambique but in other developing countries as well (Smale et al, 2009). Findings from the Smale study revealed that there are a number of factors that influence the dimensions of quality of seeds procured through these markets namely, availability, transactions costs and prices information. The results also indicate that in Mali, the informal seed sector provides a constant supply of locally adapted seed in face of a poorly established formal seed channel. In Kenya, the formalized seed channel does not exist for some seed types like pigeon pea and village seed markets cover this gap.

3.2.2 Seed companies

The main function of seed companies is to produce and market certified seed. As of 2005, Mozambique had two main seed companies, SEMOC and PANNAR. However, more seed traders have emerged in the market with the majority importing seed from South Africa, Zimbabwe, Malawi and Zambia (Wulf and Torp, 2005). The main companies supplying certified seed in Mozambique are SEMOC, PANNAR, TECAP and HYDROTECH (Table 3). These companies produce a variety of certified seeds but according to a CIMMYT (2007) report, their average production level of 230 tones a year does not cover domestic demand. This is due to a number of constraints including poor production infrastructure, unfavorable land policies, poor climatic conditions, and field pests and disease.

Table 3: Seed companies providing certified seed to farmers in Mozambique

Seed Company	Operations
SEMOC (<i>Sementes de Moçambique Lda</i>)	Initiated in 1978 and 51% is owned by the Seed-company of Zimbabwe, 30% by the Mozambican government, 9.5% by Svalöf/Weibull AB and another 9.5% by International AB
PANNAR	Involved in seed production although it was initially a seed importer when it initiated its activities in Mozambique. The company receives technical and financial backing from PANNAR Greytown in South African.
HYGROTECH Mozambique	Operations in Mozambique began in 2000 and it deals mainly with commercialization of vegetable seeds
TECAP	A Mozambican firm which is a part of Mayford, a South African seed company. Like HYGROTECH, it mostly supplies vegetable seed.

Source: Wulf and Torp, 2005

Of late, seed production levels in Mozambique seem to be improving. The total seed produced for maize by four companies was 107 hectares and the expected output from that was 315 tones for the 2008/09 cropping season (Table 4). This was coming from the districts of Chokwe, Umbeluzi, Alto Molocue, Sussundega and Tete.

Table 4: Local production of basic seed in the 2008/09 season

	IIAM	Mocfer	Lozane farm	SEMOC	Total area	Expected Production	Production Cost(MT)
Crop	ha					Tones	Metical
Maize	30	20	52	5	107	315	1 605 000
Rice	20	30	-	-	50	600	4 200 000
Wheat	5	5			10	20	100 000
Soybean	5		5		10	15	75 000
Sunflower	5		5		10	20	100 000
Total	65	155	62	5	187	970	6 080 500

Source: (FPAP Report, 2008)

During the 2008/09 season, rice seed was only produced by two companies in the provinces of Chokwe and Zambezia on a total area of 50 hectares. The expected production was also reasonably high at 600 tones (FPAP Report, 2008). Chokwe was the only district that produced wheat while Nampula and Alto Molocue produced both soybean and sunflower seed. The FPAP report however did not include the contribution of PANNAR in local seed production. This is despite the fact that Wulf and Torp (2005) mentioned it as a major source of certified seed in Mozambique. Recently, some NGOs have embarked on seed production projects at community level to curb seed shortages in the market. The programs involve producing seed for commercial and non- commercial reasons. Non- commercial seed production promotes seeds which are of little interest to the private sector and are therefore for local distribution and sale. Commercial seed production encourages seed production of crops with high commercial potential with the seed producers eventually becoming part of the commercial seed sector (Rohrbach et al, 2001). Despite the improvement in seed production levels, there is still need for imports and other sources to cover seed deficit.

Seed marketing is dependent on relief programs. Most of the seed produced and commercialized (80%) by companies is absorbed by emergency programs (Massingue et al., 2004). Although about US\$6 million are allocated by farmers for seed purchase, US\$5 million are spent on informal market (MADER, 2002). This is an indication of the large gap in the seed marketing sector and an opportunity for private sector development. The Minister of Agriculture in a public announcement indicated that Mozambique will increase improved seed production from current 6 000 tons to a 262 000 Tons as part of the National Program for Enhancement of Seed Value Chain (Jornal Noticias, 2011).

3.2.3 The role of Agricultural Research Institutes in seed production

International Agricultural Research Centers (IARCs) are another source of seed in a number of developing countries. Their main function is to develop seed varieties adapted to the local environment (Table 5). Their contribution as a source of seed is however not very significant because they mainly provide breeder seed on a trial basis when conducting their research. In 2007, the International Crops Research Institute for the Semi Arid Tropics (ICRISAT) together with the Mozambican government established USEBA to produce and market foundation seed of improved varieties for commercialization (ICRISAT, 2008). USEBA supported by the World Bank then established a seed processing plant in the province of Nampula to process improved seed.

Other IARCs operating in Mozambique are CIAT (International Centre for Tropical Agriculture), IFPRI (International Food and Policy Research Institute), IRRI (International Rice Research Institute), ICRAF (World Agroforestry Centre) and CIMMYT (International Maize and Wheat Improvement Centre).

Table 5: IARCs operating in Mozambique with interests in seed production

Organization	Operations
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	The organization has been involved in the Mozambican seed sector for more than 20 years. One of their projects in the country is on improving supply of high quality seed through research.
International Institute of Tropical Agriculture (IITA)	The institute has been involved in promoting production of cassava and sweet potatoes in suitable areas.
International Potato Centre (CIP)	The organization was part of the initiation team which introduced beta carotene-rich (orange-fleshed) sweet potato varieties. Community members were also educated about the importance of vitamin in the diet.
International Maize and Wheat Improvement Centre (CIMMYT)	CIMMYT has worked in partnership with INIA in the development of maize varieties with tolerance to drought and resistance to insect pests and pathogens.

Source: Wulf and Torp, 2005

3.2.4 Agricultural inputs relief programs

The most common and oldest response to seed relief in the face of emergencies is direct seed distribution. Countries like Zimbabwe and Kenya use commercial based direct seed distribution in some years, to promote their seed industries. In Mozambique, the direct approach to seed distribution was the preferred method and was mostly done by NGOs (Wulf and Torp, 2005). A seed assistance program was initiated by the Mozambican government in 1975 in order to distribute seed of public varieties. The amount of seed distributed by 1990 was 14,000 tones for a number of different food crops. A reduction in relief operations brought this number to 3,000 tones in 1995 (Walt, 2006). The direct approach has however been dropped and seed vouchers and fairs are now being used instead.

The use of seed vouchers during seed fairs is gaining momentum as an alternative to direct seed distribution in developing countries (Mazvimavi et al 2008). Mozambique has shifted from the conventional method of seed relief to the more popular seed fairs and vouchers with two objectives in mind. The first is to provide seed to producers affected by natural disasters and the second is to stimulate seed market development (Tostao, 2007). The programs have been implemented in response to emergency situations whereby households require seed following varying disasters (Bramel and Remington, 2005). Farmers in need of seed are identified and provided with seed vouchers of a specific cash value to be used to purchase seed from locally organized seed fairs. The seed suppliers then cash in the vouchers from the participating organization. A fair is basically a specialized market where buyers and sellers meet to exchange specific goods for money. Seed fairs in particular describe a market where seeds are traded. Seed fairs are an initiative of the Catholic Relief Services (CRS) and have been introduced in a number of African countries, registering generally positive results (Bramel and Remington, 2005). Both local and certified commercial seed traders are encouraged to participate to bring about variety and increase the scope of choice. Seed vouchers are aimed at giving households leeway to choose seeds they want in the process promoting crop diversity. They also create awareness of the different seed sources and varieties available to farmers. Vouchers are used for a number of reasons. They can be aimed at promoting markets or be the only option where the cash economy is non existent. At times

donors could be unwilling to fund cash programs or there might be concerns in some instances that the cash could be diverted elsewhere (Longley, 2006).

Seed fairs have been certified by the Mozambican government as the best way of providing seed relief when the need arises. They were first implemented in response to the 2001 floods. Table 6 shows the number and size of Input Trade Fairs (ITFs) that were organized in Mozambique between 2001 and 2005. The general trend observed is an increase in the number of fairs and beneficiaries in successive years. The year ITFs were introduced in Mozambique, a total of 10 fairs benefiting 4,375 people were conducted. The following year in 2002, the total number of fairs increased to 31 and 7,050 people benefited. In 2003 there was a marked increase to 101 fairs and as expected the number of people who benefited was also significant at 37,420.

Table 6: Input Trade Fairs in Mozambique (December 2001- March 2005)

Year	Donor	Implementing Agencies	Season	Number of Fairs	Value of Inputs	Number of Beneficiaries
2001	COSV	Kulima and local NGOs	First	6	31,595	2,475
	DEC	Action Aid	First	2	12,766	1,000
	PROAGRI	District Directorate of Agriculture	First	2	7,468	900
	Total			10	51,829	4,375
2002	PROAGRI	District Directorate of Agriculture	First	31	57,000	7,050
	Total			31	57,000	7,050
2003	COSV	Action Aid, Kulima, IPM, ADRC, LWF, Caritas Muchefa	Second	17	51,609	7,660
	DFID	Action Aid, Kulima, CCM, Caritas, APROS	Second	9	40,021	4,950
	DFID	CARE, Mahlahle, Vet-Aid, Handcap Intl, Kulima, Muchefa, ATAP, ADCR, Caritas, IPM, Pro-Lide, Aceagrarios, ASA, CCM	First	67	265,353	20,820
	Swedish Aid	ADCR, Caritas, CCM	First	8	32,340	4,000
	Total			101	389,323	37,420
2004	DFID	ASA, Kulima, Aceadrarios, CCM, ADEM, ADS, District Directorate of Agriculture Umokazi	Second	28	112,382	13,900
	Swedish Aid	CARE, Mahlahle, Vet-Aid, Muchefa, ATAP, ADCR, Caritas, Pro-Lide, Action Aid	Second	22	88,936	12,000
	Government of South Africa	District Directorate of Agriculture	First	37	129,829	15,900
	Provisional Funds	District Directorate of Agriculture	First	9	34,468	5,400
	Total			96	365,615	47,200
2005	Government of South Africa	DDA	Second	22	82,468	10,200
	Total			22	82,468	10,200

Source: Longley, Dominguez and Devji, 2005

In 2004 however, a new trend emerged in Mozambique whereby the number of fairs declined to 96 but surprisingly the number of beneficiaries increase to 47200. The year 2005 recorded a significant drop in both the number of fairs and beneficiaries to 22 and 10200 respectively. Longley, Dominguez and Devji, (2005) point out that the number of ITFs organized each year depends on the level of funding and this could explain the decrease in ITFs as from 2004. Evidence from other countries suggests that seed purchases during input fairs are biased towards the staple food. Seeds sold in the districts of Sesheke and Shangombo in Zambia during the 2003/04 season showed that maize, the staple food, recorded the highest number of sales (Kalinda and Sikwibele, 2006). The same pattern was observed in Zimbabwe during the 2005/06 season where purchasing trends by farmers showed that they were biased towards maize seed, again the staple cereal.

The advantages seed fairs are believed to have over direct seed distribution justify their popularity especially with NGOs. The first advantage is the strengthening of rural seed markets since money is retained in the community thus contributing towards building the local seed distribution system (Practical Action Technical Brief, 2002). Secondly these fairs present farmers with a wider choice of local seed and crop varieties adapted to the local environment and at a reasonably cheap price (Practise Brief, 2005). This is however disputed by Mazvimavi and Rohrbach (2008) who based their argument on research findings from a 2005/06 season study in Zimbabwe. It was revealed that even when faced with wide choices during seed fairs, participating farmers still opted for commercial seed types. This could be because the commercial seed sector in Zimbabwe is well established and farmers are familiar with it. Mozambique adopted the Food Production Action Plan (FPAP) whose main objective is to overcome shortages in main food products (for example maize) in the next 3 years (from 2009) and to reduce dependence on imports (FPAP Report, 2008). The intervention strategy for maize to increase production involves availing certified seed to small scale farmers through agricultural input fairs. Producers expected to benefit in the first year total 230, 000. The program is concentrated in the regions with the greatest agricultural potential.

The seed fairs also have their fair share of disadvantages. According to a Practical Action Brief (2002), seed fairs are argued to be costly to implement and the implementation process itself takes a substantial amount of time. This however seems to be in contradiction with Kalinda and Sikwibela (2006) who argued that one of the advantages of seed fairs is that they are planned and implemented in a short space of time. The advantages and disadvantages of these seed fairs therefore seem to be subjective when considering the opinions offered by different authors. This could possibly be because the advantages and disadvantages differ according to the socio- economic circumstances as well as the policy environment.

3.3 The Fertilizer Sub-Sector

Declining soil fertility in Sub Saharan Africa is of concern because it threatens the levels of crop production hence the need to increase the use of fertilizers to improve crop production (Crawford et al, 2005). Fertilizer, together with other key factors, is a significant determinant of agricultural productivity especially among smallholder farmers (Minde et al, 2008). Mozambique has one of the lowest average fertilizer application rates in Africa (Chianu et al,

2008). Fertilizer usage in the country is heavily constrained by high prices and scarcity due to reliance on fertilizer imports (Hubbard, 2008). Mozambique currently does not have domestic production of fertilizer and imports mostly from other SADC countries which also have low production levels. According to FARNPAN (2010), most SADC countries which have developed facilities for local fertilizer production operate at less than 50% capacity. This has had a marked impact on the optimal performance of the fertilizer market in Mozambique.

3.3.1 Fertilizer consumption trends

Sub Saharan countries have some of the lowest statistics for fertilizer application in the world (Crawford et al, 2005). According to data available in Chianu et al (2008), Mozambique has one of the lowest fertilizer application rates in Africa and Table 7 shows the average rate to be 5kg/ha. According to TIA 2008, only 4-5% of the farmers use fertilizers in their fields. The fertilizer is used especially used in horticulture around the main cities, Maputo, Beira, Chimoio and Nampula, and also in sugar industry (the largest consumer) and tobacco.

Other countries such as Malawi and Kenya have average application rates of 39 and 29 respectively, which is significantly high for developing countries. Fertilizer is expensive and not widely available in Mozambique because it is mainly sourced from outside.

Table 7: Average rate of fertilizer application statistics in related countries

Country	Average rate of fertilizer application (kg/ha)
Kenya	29
Malawi	39
Mali	9
Mozambique	5
Zambia	8

Source: Chianu et al, 2008

Mozambique generally imports small quantities of fertilizer as compared to neighbouring countries. It is shown that between 2005 and 2008, Mozambican fertilizer imports were less than those of the other three countries (Table 8). There are a few exceptions though where the country registered higher volumes than Zambia like in 2005 and 2007. The figures however do not account for the fertilizer imported by the other countries with access to ports outside Mozambique. This could explain the differences in the amount of fertilizer consumed. Mozambique itself has 4 other ports from which fertilizer could have been received hence these amounts shown above are not representative of the total amount of fertilizer consumed in the country for the stated years although it gives a rough estimate. The total fertilizer consumption in 2006 was 22 751 metric tones which is less than the 23 646 metric tones imported through the port of Beira. The dependence on imports for fertilizer in Mozambique is blamed on the low levels of domestic production (Hubbard, 2008). This is disputed by Hammond (2009) who states that even though fertilizer production in Mozambique is minimal when compared to her neighbors, it is present. The author however agrees that the consumption levels are very low compared to its neighboring countries like Malawi which has registered significant growth in fertilizer purchases among its farmers between 1997 and 2007.

Table 8: Fertilizer Imports through the Port of Beira in 2005- 2008 (tons)

	2005	2006	2007	2008
Malawi	104,252	52,977	113,390	118,930
Zimbabwe	62,430	41,696	103,477	31,532
Mozambique	19,647	23,646	72,959	14,885
Zambia	6,800	29,525	27,678	25,963
Total/Year	193,129 tons	147,844 tons	317,504 tons	191,310 tons

Source: Hammond, 2009

3.3.2 Factors influencing fertilizer use in Mozambique

The agricultural sector is associated with risk because of its susceptibility to nature. This works against smallholder farmers seeking to acquire loans from financial institutions in order to purchase fertilizer. The fact that most of them are resource poor and do not have assets to use as collateral is also a disadvantage. There are very few credit facilities in rural Mozambique from which farmers can get loans for fertilizer purchases. The price of fertilizer determines its accessibility especially amongst resource poor farmers. African Agriculture (2008) reports that the Mozambican government pledged to initiate a small organic fertilizer processing plant as a way of dealing with the high price of fertilizer. The industry would be set up in the province of Sofala producing smaller (less than 50kg) packets to make it more accessible to poor farmers. It would reduce the need for imports and also reduce the price of fertilizer.

Getting the right fertilizer, to the right place and at the right time is extremely important (Heisey and Mwangi, 1996). Timing is important when applying fertilizers because it can determine the crop yield response to the application. The International Fund for Agricultural Development (2009) report on the evaluation of a smallholder fertilizer project in Malawi suggests that availability also encompasses the actual availability in all market. Limitations in the performance of fertilizer markets were subdivided into three groups by Gregory and Bumb (2006), market development, technical support and infrastructural development:

3.3.2.1 Market Development

Market development is a concept that looks at the transformation of markets overtime. It also covers the way these markets become established in response to the prevailing conditions at that time (Jacobs, 2008). Fertilizer markets do not operate at their optimal levels because of the market development constraints they face. For markets to function well they need a conducive policy environment, sufficient human capital, regulatory systems that are effectively enforced and easy access to finance and market information. In Mozambique only a handful of these factors are met. The policy environment in which they operate is not fully conducive but of late the government has implemented policies such as fertilizer subsidies to boost use of fertilizers among smallholder farmers. These producers however still face the problem of a lack of access to credit to purchase inputs because of the poor state of the rural financial credit system on one hand while facing an unreliable product market on the other.

Productivity increases due to use of fertilizers, improved seed and pesticides. Access to these inputs however may pose a problem to farmers. As such the government implemented the Rural Finance Intermediation Project in 2003 which is set to run until December 2011 (African Development Bank, 2008). The main objective is to support smallholder farmers in terms of access to credit for use in purchasing inputs. Thus far documented benefits from this project are still low because the level of physical implementation is currently pegged at 25 percent and 25.5 percent of farmers received the credit. These figures seem low considering the time that has elapsed since the project implementation because one would expect more visible results and a more significant improvement in the state of the credit markets by now. In contrast, the Rural Finance Support Program implemented in 2005 is a success story (Bage, 2008). The targets were smallholders, among others and disbursements were controlled at the community level. Mozambique is capable of rectifying its poor rural financial credit systems because other developing countries were able to make headway in this aspect. In Bangladesh for example, the Grameen Bank which was started in 1976 proved to be very successful (Yunus, 2006). It is still operational demonstrating that when handled properly, rural credit systems can be a success.

3.3.2.2 Farmer knowledge

Farmers need to have practical knowledge of fertilizer products in order to encourage sufficient demand of fertilizers in rural areas. The Mozambican government has invested in farmer training and development programs such as the Cooperative Development Program , to combat this problem. Other countries have done likewise for example Zimbabwe adopted the Agri-Development Programme which encompassed training farmers on the proper application of fertilizer to maximize yields (Muchena, Undated). The program was also adopted in Malawi and Zambia. Technical constraints can prove very costly when not properly addressed. In Tanzania for instance, farmers used a mixture of DAP and CAN fertilizer for topdressing crops. This led to resource wastage because top dressed DAP provides little benefit (Gregory and Bumb, 2006). This would have been avoided had the farmers been properly trained on the application process.

3.3.2.3 Functional rural road networks

The majority of developing countries especially in Africa are characterized by poor road systems and infrastructure. Mozambique is no exception with three decades of war having caused havoc especially to the rural road networks. Reconstruction efforts after the civil war ended were biased towards the urban areas. An improvement in rural road networks is central to developing agriculture because poor conditions add to transport costs making inputs more expensive. This has a negative impact on the functioning of input markets. Mozambique however has an advantage over its landlocked neighbors because of it being on the coastline. Fertilizer is imported at a cheaper cost than other centrally located countries. When importing fertilizer through the port of Beira, countries like Zambia and Zimbabwe incur extra duty and transport costs which contribute to the high final price of fertilizer in those countries. Despite this, the fertilizer sometimes does not reach its intended targets owing to transportation barriers like the poor state of the roads. To curb this, the Danish government lent support to the Mozambican government to rehabilitate the rural road networks in Tete, Manica, Cabo

Delgado and Maputo (Ministry of Foreign Affairs Denmark, 2009). The objective of the exercise was to provide smallholders with access to both product and input markets. Investment in developing road networks improves market integration and the general functioning of markets.

3.3.2.4 Presence of fertilizer subsidies

Six categories are identified by Crawford et al (2005) as being the most popular fertilizer promotion programs in Sub Saharan Africa. There are the controlled state in put distribution programs, targeted government input distribution programs in an open market and the Sasakawa/Global 2000 programs. There is also out grower or cooperative programs with interlinked input-credit-output market transactions, public sector facilitation of private sector fertilizer supply and starter packs programs.

Minde et al (2008) list six factors as determinants of costs and benefits of fertilizer subsidies. Of the six, two are determinants of the cost while the remaining four are determinants of the benefits. These factors are believed to be greatly influential in assessing the impact of these fertilizer promotion programs. The actual cost of acquiring the fertilizer is of major influence. Fertilizer prices have gone up in recent years rendering it unattainable to low income farmers. This results in a reduction of the potential returns set to be realized through fertilizer subsidy programs. There is also the economic cost of implementing the fertilizer subsidy program. This includes the economic costs associated with the distribution and application of fertilizers. It also takes into account the opportunity costs of the resources used in the program for example the benefits that would have been attained had the resources used for the fertilizer subsidy program been channeled elsewhere. The benefits are determined by the price of output. Increases in world food grain prices affect domestic prices and in turn accessibility by poor people. Fertilizer subsidy programs have been seen to aid in boosting domestic production and thus increasing food (grain) reserves of a country. As such grain is more readily available and cheaper when domestically produced.

The agronomic response rates are also a major factor. Fertilizer application does not independently increase crop yields. It should be coupled with providing training for farmers on proper agronomic practices required to maximize yields. This includes lessons on efficient use of fertilizer, water management and soil fertility. This concept is illustrated by the authors using what they refer to as the “with or without” framework. They describe a situation whereby in the absence of a subsidy program, a farmer purchases 2 bags of fertilizer. Should the farmer receive 4 bags of subsidized fertilizer, he/ she will see no need to purchase the 2 bags from the trader. Commercial sales are thus displaced but the rate is low if the subsidized fertilizer is sold to poor households who otherwise would not have been able to afford to buy it. Research findings from Malawi and Zambia show that an additional kg of fertilizer distributed under the subsidy program adds 0.5 to 0.8 kg to the amount of fertilizer used by farmers. The displacement rate in this case is 20-50%. Finally, there is the issue of timely arrival and utilization of fertilizer by farmers. Precise timing during application of fertilizer determines to a large extent the success or failure of crops. Late arrival of fertilizers is said to

be a common feature of fertilizer promotion programs. Examples cited are from studies of fertilizer transport subsidies conducted in Tanzania (2007) and Malawi (2006/2007). In both cases it is noted that the fertilizer arrived later than the optimal time that application was required in the crop growth cycle.

Fertilizer subsidies are known to have several advantages that result in increased crop yields. This consequently leads to additional agricultural output and thus incomes for farmers and traders. They also contribute towards improving food security and alleviating poverty. When farmers have access to fertilizer and they apply it, soil fertility is restored. These subsidies are said to provide social and environmental protection.

On the negative side, fertilizer subsidies may result in ineffective targeting due to corruption leading to the elite benefiting instead of the resource poor smallholder farmers. Corruption is a longstanding hindrance to progress in Africa and it is therefore not surprising that it is being noted as a problem in this program as well (Uaiene, 2009). In Zambia it was found that there was little observed progress in increasing maize productivity following implementation (ACF & FSRP, 2009). A number of disadvantages associated with fertilizer programs were observed. There was poor targeting of farmers and the input distribution process was delayed. The targeted farmers were not efficient in their use of fertilizer which again brings back the point that investing in farmer training to this effect greatly determines the success of the program. Little observed progress in increasing maize productivity. There were irregularities in the policy implementation and poor monitoring of the implementation and impact was done. The private sector participated in input distribution but it was not that significant. This undermines the public- private sector partnerships that are seen as the answer to growth of the agricultural sector in developing countries.

Private sector investment in the subsidies is at times disrupted by erratic changes in the programs. The opportunity cost of the resources channeled towards the subsidies which could have had better returns had they been diverted to other productivity enhancing investments is also considered as a disadvantage.

3.4 Lessons for Mozambique

Fertilizer subsidies, like any other programs, have both advantages and disadvantages. A number of developing countries have been successful in efforts made to transform their agricultural sectors into sources of growth and export earnings through implementing fertilizer subsidies. One such example of success is Malawi which has managed to cover its domestic demand of maize at the same time producing exportable surplus (FAO, 2009). This has been achieved through a newly implemented government policy of smart subsidies for fertilizer. Malawi plans to spend US\$186 million to subsidize fertilizer and seeds for poor farmers in the 2009/10 season. This figure is three times the one for 2008/09. The program in Malawi has reduced the costs for food imports (Africa Focus 2009). This shows that when handled properly, and despite other associated disadvantages, fertilizer subsidies contribute to increased agricultural productivity. In Mozambique the SG2000 phased out input subsidies since 2000 but rural credit markets have not been developed. This has resulted in a reduction

in use of improved seeds and agro chemicals by maize farmers (Uaiene, 2009). Fertilizer subsidies therefore seem to be a good initiative when striving to increase agricultural productivity. However, they are not a success story in every country. It has been found that these programs are not as effective as the implementers would have us believe hence the need to reform them.

In light of the problems encountered during the Fertilizer Support Program in Zambia, a few recommendations were made for future running of the program . The foundation of the program would need to be strengthened and linked to training to deal with the problem of inefficiency. The name would then be changed to Farmer Input Training Support Program to capture the objective in the name. There was also need to implement a more flexible input voucher system and selection or targeting of farmers would need to be carried out at community level. This is to address the ease with which the system works and also curb the problem of corruption. In time the input pack would include other seeds than maize with the size starting at ½ a hectare. This is to increase crop diversity which is an important agrological factor.

4. AGRICULTURAL PRODUCT MARKET DEVELOPMENT IN MOZAMBIQUE

Mozambique has seen rapid economic growth since the end of the civil war, partly because of a low base. According to World Bank report (2008) better functioning product markets are needed in Mozambique in order to attain higher levels of agricultural productivity. To develop the markets, investment in infrastructure and a more conducive policy environment are needed to improve farmer's linkages to markets outside their local reach.

4.1 Types of Product Markets

Three types of product markets exist in Mozambique. There are the informal markets for both local and cross border trade. The local informal market is the one in which grain trade occurs within the Mozambican borders while the latter involves trade with neighboring countries. The second product market is the formal trading which is subject to regulations. Lastly are the relief grain deliveries which have been significant in the Mozambican history because of the war and natural disaster experienced in the country.

4.1.1 Informal markets

Local grain trade at the village is dominant in Mozambique. Those who produce a surplus sell to those in need, either within the local community or to neighboring communities. This informal trading has however spread across borders. Governments put in place barriers to control the transportation of goods between borders. This does not eliminate informal channels of movement across borders, which are at times referred to as illegal. Grain is no exception, and it also falls prey to such channels. Mozambique and its neighboring countries make use of these informal channels to trade in grain. These informal channels create employment and increase food security but also result in a loss of tax revenues. In 1996 alone, Mozambique lost a total of US\$12 million through the informal trade of agricultural

products worth US\$54 million. This is a lot of money which could have been channeled towards constructive programs by the state. They are also believed to facilitate the illegal trade of goods and increase corruption (Macamo, 1999). The informal trade in maize with Swaziland, Malawi, Zambia, and Zimbabwe was estimated at 200 000 tons in 2007 (Mucavele, 2007).

Figure 1 shows the volumes of grain traded amongst six countries, DRC, Malawi, Mozambique, Tanzania, Zambia and Zimbabwe. This was between July and November of 2004. Maize is the dominant product being traded and registers high volumes for each of the five months. August had the highest record of maize traded at 14000 tons. This is understandable considering the fact that August is the peak harvesting month for maize and maize is the staple crop in all the countries. The maximum amounts of rice and beans traded are 2000 tons for both. The volumes of products traded for each country are not highlighted, only the total volumes are shown. It is difficult to estimate the actual figures for individual countries by looking at this graph alone. A trend seems to emerge as far as the amounts traded with respect to the time they are traded. The amount of maize declines from September through to November because of the planting season. This is towards the end of the year and chances are people have consumed most of their maize hence there is less available for trade. Some of them have to bribe officials to get their goods across the border, and this also adds to the cost

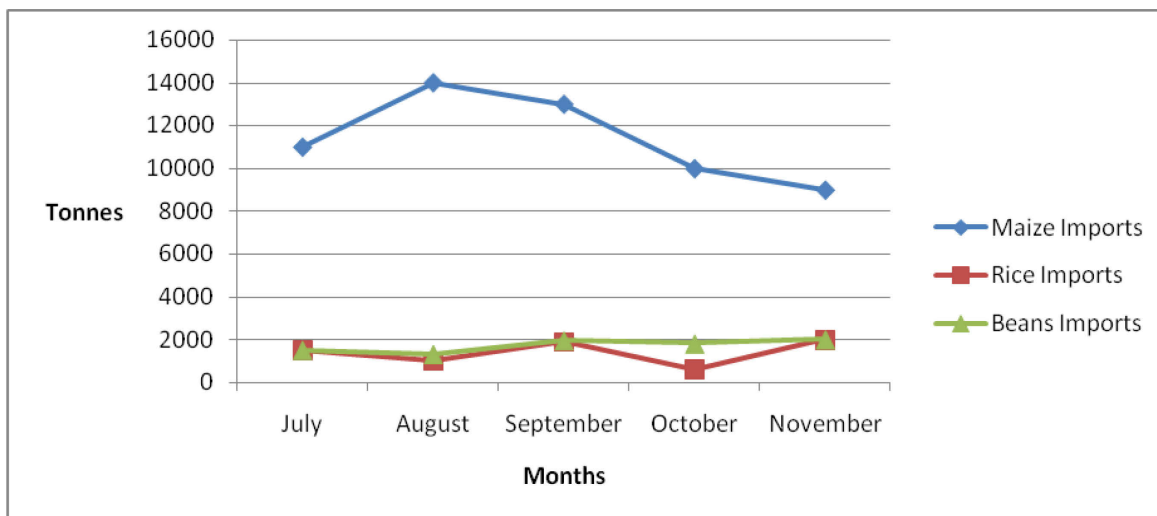


Figure 1: Total recorded informal cross border trade in DRC, Malawi, Mozambique, Tanzania, Zambia & Zimbabwe in 2004

Source: Mucavele, 2007

The amount of beans does not fluctuate as much as the cereals. Rice takes a dip in October but picks up in November. Macamo (1999) shows that trade in agricultural products is seasonal as highlighted in Figure 1, and the fluctuations in trade of three products namely maize flour, meat and potatoes are illustrated. Maize flour which also happens to be a by product of the staple maize, varies the most. Meat which is considered to be luxury shows a

bit of variation as well but potatoes show next to no fluctuations. Maize flour is traded the most in February just before the harvesting of maize begins and it sharply declines from then on. This could be because around February there is a shortage of maize hence the need for more trade. During and soon after harvest, there is little need for trade because people still have their own maize and the market for trading will not be very active.

Figure 1 shows that the volume of cereals and other crops traded informally is high in the six countries. This could however be a thing of the past should the governments impose stricter rules and barriers to this sort of trade. In this way, a lot of revenue which is currently being lost because of these informal channels could be saved and put to better use. This is not to imply that the informal cross border channels do not incur any costs at all. They still have to pay for transportation which at times becomes expensive since they transport in small consignments.

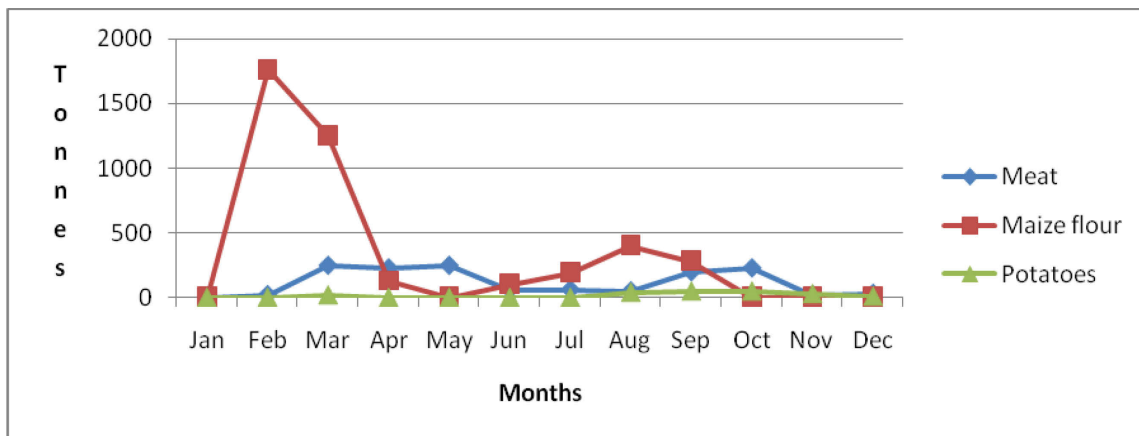


Figure 2: Trade seasonality in major agricultural commodities: Maize imports from Swaziland

Source: Macamo. 1999

The elimination of tariffs in the SADC region could hamper such a move. Most of the informal trade is between Mozambique and its neighbouring countries who also happen to be members of the SADC. As such, they are entitled to tariff free trading with Mozambique. On the other hand, elimination of the tariffs could encourage small holder farmers and other people in general to follow the formal channels of grain trade at no expense.

4.1.2 Formal trading

A common characteristic among countries in Africa is that they import more grain than they export. Agricultural productivity in Mozambique has not reached sufficient levels to enable the countries to produce grain surpluses and depend less on imports. A recent success story however is Malawi which managed to produce exportable surplus of maize after having covered its domestic demand (FAO, 2009). Food aid has been the main source of imports in Mozambique in the past. After the civil war ended, part of the imports had been sourced from neighboring countries (Forum for Food Security in Africa, 2004). Mozambique is involved in both formal and informal grain trade with its neighbors. The characteristics and trends in

informal cross border grain trade have already been discussed above. Figure 3 shows the import and export trends in the country between 2000 and 2007. The graph depicts grain traded through formal channels.

Figure 3 shows a decline in rice imports between 2000 and 2001 and a steady increase there onwards. A substantial amount of maize was imported from 2000 to 2002 and the imports declined between 2002 and 2004 and picked up between 2004 and 2006 before dropping again in 2007. The trend in both cereals between 2000 and 2002 might be attributed to the floods which the country experienced during the planting season in 2000. Ten percent of the reproductive land was destroyed and grain production for that year was not sufficient to meet local demand warranting the need for imports. Maize is the staple food hence it had the largest share of imports. Wheat and rice are important in the country but they are somewhat luxuries therefore explaining why the volumes imported during that period were not very high. Maize production improved in 2002 and there was less need for imports. Wheat and rice were however in more demand but their local production levels were low and the country had to import. In 2006, maize and wheat production levels were high and there was less need for import of these two. The flooding experienced in 2000 had a negative impact on agriculture to such an extent that Mozambique hardly exported any maize since it was in need of this staple grain. Statistics from FAO (2009) indicate that no wheat and rice was exported between 2000 and 2007.

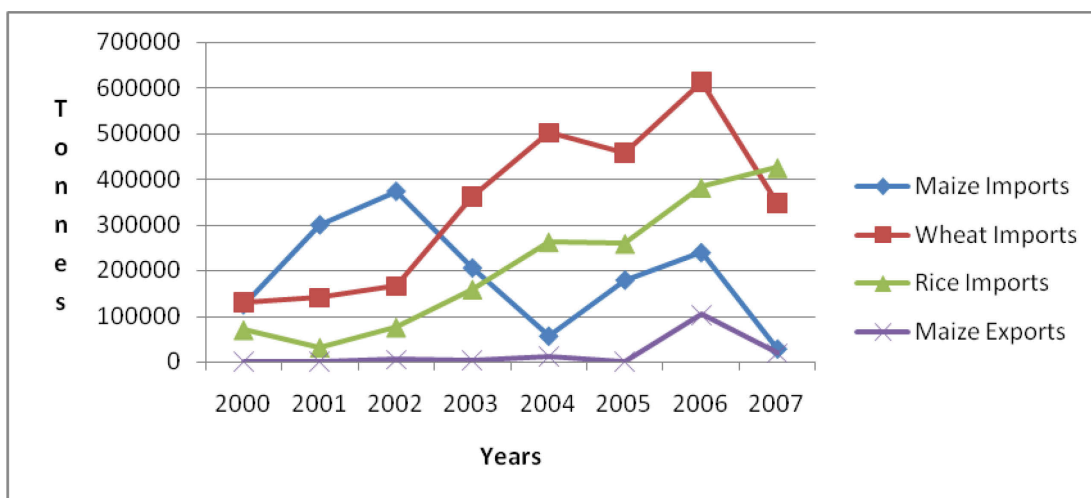


Figure 3: Cross border movement of maize, wheat and rice in Mozambique 2000- 2007
Source: FAO Database

Export of maize reached its peak during this period of 2000-2007, in 2006. This however seems to contradict with the amount of maize in the same year. If Mozambique had produced exportable surplus, it stands to reason that it would have first met its domestic demand before exporting. There would therefore have been no need to import maize in 2006 but the statistics show that imports were made.

4.1.3 Relief grain deliveries

The dependence on relief grain in Mozambique dates back to the war of independence. This continued throughout the 1980s and early 1990s because of the civil war and droughts, and again in 2001 because of floods. In 1991 alone 120, 000 tons of grain was donated to Mozambique. This figure increased to 600, 000 tons the following year because of the double impact of the war and drought. After the floods in 2000, relief grain was also donated to Mozambique but more emphasis was on the provision of agricultural inputs. This was to ensure production would take place in the following agricultural season.

4.2 Trends in Grain Production in Mozambique

The products market has evolved over time in response to various key drivers in Mozambique. Fluctuations have been as a result of war and natural disasters in different years. This has had a huge impact on the cereal production and import trends (Figure 4). Agricultural production tends to be low during times of conflict because the market structures are poorly functional (Forum for Food Security in Southern Africa, 2004). Figure 8 shows that the lowest production was between 1990 and 1992 before the civil war had ended. The most vital markets are the inputs market to provide the inputs needed for production to take place. During times of war this is difficult because some areas become cut off from the rest of the country due to a number of factors for example, destruction of road networks and dangers associated with travelling to the places. The town of Inhaminga in central Mozambique was cut off from the outside world for 5 years (The Economist, 2002). It was controlled by Renamo rebels and the roads around it were mined making it dangerous for outside people to enter and for those inside to leave.

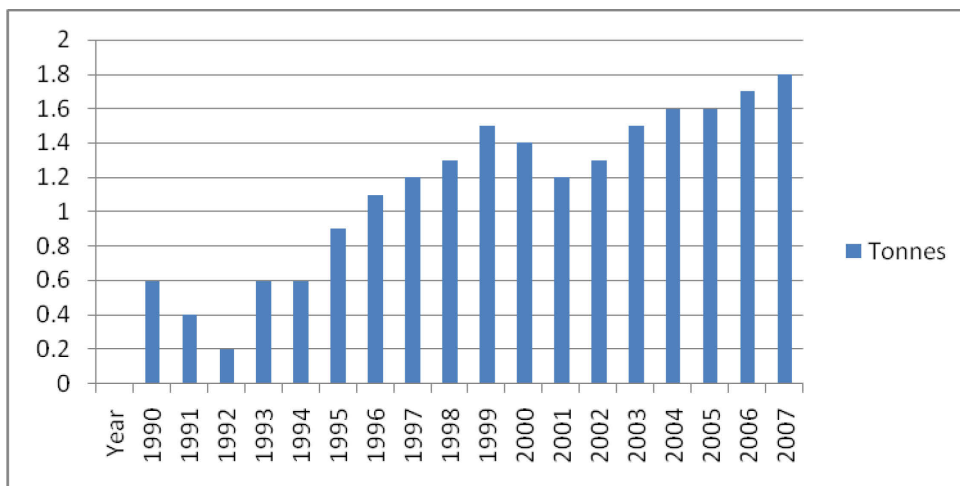


Figure 4: Total cereal production, 1990- 2007 (Millions of tons)

Source: Biacuana, 2009

Production increased after the civil war ended in 1992 because most people in rural areas who had fled their areas of residence returned home with a conducive environment to practice agriculture. It is said that after the ceasefire was signed in November 1992, the people in Inhaminga for example received food aid and after two weeks people were already healthy enough to begin planting the next year's crop (The Economist, 2002). Their region also had

the advantage of having received good rains during that particular planting season. However, production levels were still low because of the infrastructural destruction that had been a result of a combination of both the independence and civil wars. Agricultural production was again adversely affected by floods in 2000 and 2001 rendering need for food aid in Mozambique. After 2002, production began to increase. Between 2005 and 2008 grain production in Mozambique grew from 1.9 to 2.3 million tons but this is still considered unsatisfactory because there is still a net grain deficit (AIMS, 2009). Biacuana, (2009) attributes this growth in cereal production to an increase in the area allocated to it as opposed to increased use of modern farming techniques and technologies.

4.3 Factors Influencing Grain Markets

4.3.1 Biophysical factors

The geographical location of Mozambique makes it susceptible to natural disasters like tropical cyclones, floods and droughts. Between 1965 and 1998, the country experienced twelve major floods, nine droughts and four major storms (World Bank, 2006). The worst flooding the country experienced to date was in 2000 (FAO, 2001). The resultant destruction was widespread and it included destruction of basic infrastructure and environmental degradation. The agricultural sector was the most affected sector because the floods occurred during the planting season. USAID (2003) estimated that over 10 percent of the total reproductive land was destroyed with the flooding mostly affecting areas planted with maize and rice.

One of the main determinants of the success of growing crops is reliable rainfall, at the right time and in the right quantities. The rainfall pattern in Mozambique is described as irregular and unpredictable. This is best described by the rainfall pattern that was observed in the 2004/05 season. There was a false start of rainfall at the beginning of September in the southern region and in the north there were heavy downpours followed by dry spells. This affected the planting of crops and the dry spells that followed the rains destroyed most of the crops planted (*FAO and WFP, 2005*)

4.3.2 Food aid

Mozambique has been one of the longstanding benefactors of food aid in Africa because of its long history of political instability and vulnerability to natural disasters. Food aid is believed to weaken the agricultural markets of the recipient country making it difficult to produce efficiently. It is said that food aid lowers local food prices to the detriment of farmers and results in the displacement of commercial food sales. Indeed it happens when food aid arrivals are not aligned with local agricultural season especially the harvest time. In this case, the tendency is to lower food prices and hurt farmers. The country managed to convince donors to schedule the delivery of food aid in such a manner that minimized its effect on agricultural markets, especially of white maize locally produced. Mozambique is a different story because it has managed to bounce back time and again after falling victim to natural disasters necessitating large volumes of food aid. The country registered fast economic growth after independence despite negative economic conditions it found itself in. The

agricultural sector which is a significant contributor to the GDP flourished after the civil war despite the country having been dependent on food aid for so long. Natural disasters that have plagued the country are now the major reason Mozambique still finds itself in need of food aid. The National Institute of Disaster management (INGC) of Mozambique claims about 275,000 people in the country needed food aid in 2009, after a long dry spell caused crop failure in the northern and central parts of the country.

4.3.3 Infrastructural development

Grain production is influenced by the state of the available infrastructure and this encompasses physical buildings as well as roads. The mass production of grain is only possible if well functioning storage facilities are available to avoid loss. Grain production also depends on the availability of inputs to farmers. It is vital that farmers receive these inputs on time in order to plant early. The farmers most affected are those residing in rural areas where there are poor road networks. Mozambique, like a lot of other African countries, has poor road systems especially in remote areas. This is due to the destruction that was suffered during both the independence and civil wars, as well as because of the floods.(Ministry of Foreign Affairs, Denmark., 2009). The poor state of the infrastructure has a negative impact on agricultural development.

5. INITIATIVES TO IMPROVE INPUT AND OUTPUT MARKETS IN MOZAMBIQUE

Over the years the the government of Mozambique adopted a variety of agricultural policies to boost the sector performance. These government's policies have affected the agricultural input and output market in different ways. This section assesses the implications of different agricultural policies dating back to the colonial era.

5.1 Agricultural policies affecting the input and product markets in Mozambique

Soon after independence socialist policies were introduced in the country, with a centrally controlled economy and policy privileged state enterprises and heavy investment in state farms. At that period trade was characterized by free movement of goods and services at low tariffs.

Between 1978 and 1983 due to fiscal imbalance and problems with balance of payment, the economy adopted protectionism actions through rationing of foreign exchange and higher tariffs (Mucavele, 2000). During that period government invested in large scale state farms for the production of basic food commodities, machinery and irrigation schemes. The government also subsidized transport from the farm gate to depots owned by the state marketing board, AGRICOM. Nevertheless, the International Monetary Fund and World Bank imposed a cut on agriculture sector support. The situation got worse by destruction of marketing infrastructure such as roads and rural shops during 17 years of war (Biacuana, 2009).

5.1.1 The National Seed Program

The Mozambican government initiated a national seed program in 1978 which resulted in the founding of a commercial seed company (National Seed Company) and a quality control and certification unit (Bay, 1997). In 1986 the company was transformed to SEMOC, owned almost entirely by the government. SEMOC was supported with approximately US\$ 40 million from the time of its inception to 1997. These resources were used to build up a modern seed industry which boasted its own breeding, production and multiplication of basic seed on three farms totaling 4,000 hectares. The farms also had three processing plants capable of producing 14, 000 tons of seed, storage facilities for 15, 000 tons of seed and a well established distribution system (SIDA, 1998). The Ministry of Agriculture and Rural Development (MADER) defined the structure for the seed sector in 1987, basing it on government policies in the Economic Rehabilitation Program (GRNB, 2001). The lifespan of the policy was 1987 to 1995 and the main objectives included reducing external dependence for seed supply, improvement of seed quality and timely distribution of seeds (GRNB, 2001). The national seed program ensured seed availability to the affected farmers. These efforts were however hampered by the onset of the civil war which resulted in a reduction of basic seed production. At the height of the civil war, SIDA (1998) reports that seed production fell from 14, 000 tons to between 2, 5 and 5, 000 tons. This can be easily explained by that the political instability caused by the war and the destruction of infrastructure disturbed normal production in the plants.

5.1.2 Input Trade Fairs (ITFs)

After the 2001 floods, FAO tested the Seed Trade Fairs (STFs) on a pilot basis within the framework of its emergency program. The model of STFs called the attention of others donors who contributed to similar project following years of drought. In addition, the Ministry of Agriculture (MINAG) in Mozambique has full endorsed the ITFs approach which has become part of its work program. The ITFs as an emergency intervention aimed at supporting food production in the drought/flood affected areas with the objective of alleviating and preventing hunger and promote a rapid recovery of agricultural production. Encouraging farmers to use improved seeds and other inputs under emergency to increase agricultural production and thereby improve their food security is a challenging undertaking (Mole, 2006).

The Input Trade Fairs program has effectively served 4,950 beneficiaries in 9 fairs during the pilot phase (April to June 2003) in the provinces of Maputo and Gaza. During the first phase (August to December 2003), 67 ITFs implemented in the provinces of Tete, Manica, Sofala, Inhambane, Gaza and Maputo assisted 32,820 farmers. The second phase (February to August, 2004) implemented 28 fairs in the provinces of Tete, Manica, Sofala and Cabo Delgado having assisted 13,900 farmers most of which women-head of households and poor in drought affected communities around the country. These results complemented MINAG similar efforts during the second 2004-5 agricultural season that implemented ITFs that served 10,200 farmers in 8 districts in Manica, Sofala and Maputo provinces. These fairs injected into the rural economy about 685 thousand USD (approximately 16 billions MZM),

in addition to other non-tangible benefits accruing to non-direct beneficiaries as they take the ITFs' opportunity to sell their crops and other products (Mole, 2006).

ITFs have been effective in two areas: (a) availing inputs to areas with no or weak rural marketing network, and thus availing inputs to farmers in drought affected areas, though may not have reached the most vulnerable; and (b) providing an opportunity for farmers to increase agricultural production, and thereby improve their food security status. (Mole, P., 2006)

However, the effectiveness of the program is limited due to lack of support to the supply side, which could constitute the long term project *exit strategy* for emergency response with local actors. The evaluation team observed that both neither formal nor informal seed and input traders/dealers are able to set *cantinas* or *barracas* to sell seed and implements in rural areas.¹ The main reason for both types of traders is that inputs are not a good business because it has a low turnover and rotation. Informal traders though, are flexible in responding to demand, (Mole, 2006)

5.1.3 Structural Adjustment Programs (SAPs)

In Africa, people's livelihoods were changed by the impact of Structural Adjustment Programs (Potts and Mutambirwa, 1998). The Whirled Bank Group (2003) defined Structural Adjustment Policies (SAPs) as economic policies followed by countries in order to be eligible for loans from the World Bank and IMF. They have common guiding principles which include export-led growth, privatization, liberalization and the efficiency of the free market. In Mozambique, economic reforms began in 1983 and intensified in 1987 with the onset of structural adjustment (Forum for Food Security, 2004). The structural adjustment program resulted in a substantial decrease in agricultural budget as well as the closure of the state marketing board, AGRICOM. Under the program, the government had to decrease support to the agricultural sector and this coupled with the ongoing civil war, had catastrophic results (Biacuana, 2009). The general idea was that the free market would raise farm gate prices and stimulate production in the absence of government intervention. The Forum for Food Security in Africa (2004) reported that the lowest levels of cereal production since 1983 were between 1987 and 1992. Not surprisingly this is the very year that structural adjustment was implemented in Mozambique and its effects were felt even years afterwards. Mozambique therefore demonstrated the shortcomings of the structural adjustment program as far as government support is concerned. It showed that in the absence of government support and investment in key agricultural inputs and infrastructure, production of most food crops declined. Unlike in Mozambique, the Ugandans reported positive results from the SAPs. In 1987, the Ugandan government implemented a liberalization policy aimed at revitalizing agriculture as part of SAPs (Bazaara, 2001). Its principle components were liberalizing the exchange rate, trade in agricultural inputs and products, and control of inflation. Some farmers were quoted saying unlike during the system of marketing boards which dictated prices to them, they were now at liberty to bargain with buyers until they

¹ Rural shops or outlet.

reached a price they were both comfortable with. This is evidence of some good which came out of the SAPs despite the generalization that it had a negative impact in all countries it was implemented in. However, other parts of Uganda blamed SAPs for the declining agricultural extension services. They argued that the liberalization of markets left them vulnerable to exploitative traders. Poverty, poor communication and poor transport meant the farmers could not access markets where they could maximize profits. They were then forced to wait for these unscrupulous traders who bought at very low prices.

The effect of SAPs on developing countries thus depends from which point of view one looks at them. On one hand, the implementing organizations (World Bank and IMF) maintain that their initiative had the potential to achieve the desired, positive results. They blame poor administration by developing countries for the negative impact SAPs had on their economies. Critics disagree and believe that these organizations were out to better their countries' economies under the guise of lending a helping hand to poor countries. For example devaluation of a developing country's currency makes their goods cheaper for foreigners to buy and makes foreign imports more expensive. In practice, when countries received funding in foreign currency, they had a tendency to purchase imports which inevitably benefited the developed countries (The Whirled Bank Group, 2003). Looking at both arguments, it would seem that SAPs undeniably had a detrimental effect on the economic development of poor countries. The so called benefits observed in countries like Uganda are out weighed by the costs observed in most of the other countries. Those in support of SAPs in Mozambique might however argue that the programs would have achieved their objectives had they not been disturbed by the civil war (Macamo, Undated). This is a bit far fetched when considering that other countries like Zimbabwe implemented SAPs during peace time but the negative effects were still experienced. According to Potts and Mutambirwa (1998), the Economic Structural Adjustment Policy introduced in the country in 1991 resulted in massive income and welfare shocks. The authors are of the notion that a full scale SAP implementation was not necessary in Zimbabwe because of its economic standing at the time which was better than other African countries. Macamo (Undated) showed that the IMF and the World Bank have established themselves as the most important and reliable sources of objective knowledge on Mozambique. This is done through the production of up to date and detailed information on various sectors of social, political and economic aspects of the country. Because of the negativity associated with Structural Adjustment Programs, the World Bank and IMF launched a new Poverty Reduction Strategy Initiative (PRSI) operating under the same principles as SAPs.

5.1.4 Poverty Reduction Strategy Papers (PRSPs)

The Poverty Reduction Strategy Papers (PRSPs) approach was approved by the World Bank and International Monetary Fund in 1999 as a foundation for their lending programs in developing countries (Bretton Woods Project, 2003). It operates under the same guiding principles as Structural Adjustment Programs, although there are a number of differences (The Whirled Bank Group, 2003). For example, the IMF's Enhanced Structural Adjustment Facility (ESAF) under SAPs was replaced with the Poverty Reduction and Growth Facility (PRGF). The IMF (2009) identified 5 core principles which underlie PRSP which are that the

strategy should be (i) country driven (ii) Result oriented (iii) Comprehensive (iv) Partnership oriented (v) Based on long- term perspective. The PRSPs are aimed also at bringing poverty dynamics to the fore, by taking into consideration the people most affected when liberalization and privatization take place. Mozambicans wrote their first strategy paper in 2001 and another in 2005. These were called the Action Plan for the Reduction of Absolute Poverty (PARPA).

5.1.5 Action Plan for the Reduction of Absolute Poverty (PARPA)

The most recent policy implemented by the Mozambican government is the Action Plan for the Reduction of Absolute Poverty (PARPA). The first phase (PARPA 1 2001 - 2004) was built on previous government plans aimed at substantially reducing levels of absolute poverty in Mozambique (PARPA, 2001). The successor to PARPA 1 was the Action Plan for the Reduction of Absolute Poverty 2006- 2009 (PARPA 11). It was designed to reduce the incidence of poverty in Mozambique from 54 percent in 2003 to 45 percent in 2009 (UN Report, 2008). PARPA 11 had the same priorities as PARPA 1 in all the economic sectors but differed in that its priorities included greater integration of the national economy and increased productivity . Of late, Mozambique has made various policy responses to the food price increases that have affected the world at large. The program is aimed at reducing the import of wheat, and eventually stopping imports of rice. It is also hoped to aid in increasing the production of other crops that the country needs and is able to produce. The country believes it is well on its way of achieving one of the objectives of the program of stopping rice imports altogether by the year 2011. The country imported 315,000 tons of rice and consumed 600,000 Metric tons in 2009.

5.1.6 Food Production Action Plan

The Food Production Action Plan (FPAP) was implemented in 2008 and is set to run until the end of 2011. Its main objective is to eliminate the deficit in the main food products as well as to reduce dependence on imports. This is going to be achieved by using the green revolution as a guiding principle. The program concentrates on increasing productivity of six crops, namely maize, rice, wheat, cassava, potatoes and oilseed, through specific production programs for each crop. Chicken and fish production programs are also included. Different objectives and goals for the individual crops were outlined in the paper. The intervention strategies to increase productivity for each were also defined. In the Maize Production Program for example, the objective and goals are to intensify maize production in the three agricultural seasons between 2008 and 2011. The targeted additional levels of production for the 2008/09, 2009/10, 2010/11 cropping seasons are 65,000, 120,000 and 204, 000 tons respectively. The program is now in its third year and there is still yet to be an evaluation to determine whether the objectives have been met.

5.1.7 The Green Revolution

The Mozambican government introduced the concept of a green revolution in 2007 as a solution to poor rural development in the country. It was designed to eliminate the grain

deficit and was integrated into the Food Production Action Plan. One of the focal points of the revolution was in the domestic production of rice (Kajisa and Payongyong, 2008). The green revolution was met with a lot of resistance following its inception. During a Food First (2007) conference, the critics accused the Mozambican President of approving the project without consulting anyone in the country. Their main argument against it was that the program could not be seen as the sole answer to rural development because it had been unsuccessful in other African countries despite the huge investments made. They were convinced that using the same approach would yield similar results in Mozambique but however agreed that should it go on, six aspects would have to be considered. It would need to focus on food for the people, give due value to food producers, establish local food systems, strengthen local control, develop local knowledge and work with nature. The fact that the green revolution was unsuccessful in other countries is not reason enough to forgo it. The study by Kajisa and Payongyong (2008) showed that there could be a case for a green revolution in Mozambique, especially for the rice sector. Their comparison between Chokwe district and Asia showed that the conditions in Chokwe were not as disadvantageous as they were in the early stages of the Asian green revolution. The only problem observed was the expensive fertilizer, costly labor and inaccessibility of credit, which could potentially worsen the difficulty of intensive use of inputs. Unlike in Asia, Mozambique planned to desist from using genetically modified seeds and opted for locally produced improved seed (SOS, 2008). This was to ensure better health while promoting sustainable growth.

Because the Food Production Action Plan is still yet to be evaluated, the extent of the success of the Green Revolution will also be seen in the coming years. African Agriculture (2009) however reported an increase in rice production in Mozambique from 190,000 tons in 2008 to 260,000 tons in 2009. This is, however, not being directly attributed to the green revolution although there is speculation to this effect. This green revolution could therefore indeed be the answer to reducing grain deficits in Mozambique.

5.1.8 National Agricultural Development Program (PROAGRI)

After the civil war ended in 1992, the Mozambican government committed itself to poverty reduction and implemented policies to this effect. In 1995, the government adopted the agricultural policy and strategy. Thereafter, an investment program called PROAGRI (National Agricultural Development Program), aimed at improving the co-ordination of donor financed activities within the agricultural sector was implemented (SIDA, 1998). It included various subsector programs one of which was a strategy for the seed sector for the period 1997- 2001. This prompted MADER (Ministry of Agriculture and Rural Development) to revise its strategy in 1997 to make it adequate for new agrarian policies and the implementation strategy designed in 1995. In line with this change, two major macro-economic objectives were pointed out. The first was to transform the subsistence sector to be involved in production, distribution and processing. The second was to reach food self sufficiency for basic products, supply raw materials for the national industry and to contribute to the improvement of balance of payments (GRNB, 2001). A five year sector- wide program for agriculture (PROAGRI I) was created in 1999 and involved many donors coming together to provide funds for various activities within the sector (Coughlin, 2006). The program

focused on institutional restructuring and its ten components were extension, research, production, animal husbandry, forestry and wildlife, land management, irrigation, micro-finance, rural communications, and institutional development (Forum for Food Security, 2004). PROAGRI I aimed to achieve food security through diversification of agricultural production and by increasing productivity; improve farms' agro-industry; increase the production of agricultural products for export, using domestic resources on a sustainable basis and without neglecting welfare of rural household (Mucavele, 2000). The National Action for Food Security (PAN) was launched as part of PROAGRI in 1999. It entered its final year in 2003 and PROAGRI II was meant to have been implemented soon afterwards but was stalled despite the fact that finance had been partially provided (USAID, 2003). However at the end of 2003, the strategy guiding the second phase of PROAGRI was developed. In 2005, PROAGRI II was proposed to be included as a component of the second phase of the Agricultural Sector Program Support (ASPS) whose first phase had coincided with PROAGRI I. This second phase of the strategic program PROAGRI II (2005-2009) aimed to improve the lives of small farmers through agricultural development, to ensure food security by promoting the domestic consumption and export value added product through development of agro-industry, and guarantee the sustainable management of natural resources with social, economic and environment products (Sok-dong *et al*, 2008).

5.1.9 The National Strategy on Food and Nutritional Security (Estrategia Nacional de Seguranca Alimentar e Nutricional - ENSAN)

ENSAN was approved in 1998 with the aim of implementing policy measures to guarantee stability in family resources through (a) increased output, (b) diversification of subsistence crops, (c) expansion and diversification of income generation opportunities through agricultural and non-agricultural activities, and (d) better knowledge of food production and conservation technologies (IPRSP, 2000). ENSAN was overseen by the Technical Secretariat for Food Security and Nutrition (SETSAN), a special unit within MADER. It was designed to improve food security through increasing agricultural production and road development (Forum for Food Security, 2004). The main objective of PARPA II as far as food and nutrition was concerned, was reducing the percentage of people suffering from hunger and chronic malnutrition by 30 percent between 1990 and 2009 (PARPA, 2006). These objectives are similar to those of the green revolution, and the Food Production Action Plan Table 10 shows the major differences of these policies.

Table 9: Key features and differences of selected agricultural policies in Mozambique

POLICY	Key Features	Difference from other selected policies / comment
Food Production Action Plan (FPAD)	Implemented in 2008 and is set to run until the end of 2011, Its main objective is to eliminate the deficit in the main food products as well as to reduce dependence on imports. and was integrated into the Food Production Action Plan(FPAP)	It is similar to the other two policies but differs in that its main focus is reducing dependence on imports. Visible results are yet to be seen.
National Strategy on Food and Nutritional Security	Approved in 1998, overseen by the Technical Secretariat for Food Security and Nutrition, objective of reducing the percentage of people suffering from hunger and chronic malnutrition by 30 percent between 1990 and 2009, component of Food Production Action Plan	It is a component of FPAP like the food production action plan but it was implemented before FPAP.
Green Revolution	Introduced in 2007, designed to eliminate the grain deficit	It has been running for the past two years and some attribute the increase in rice production during the 2008/09 season to this policy.
Protectionism	Implemented between 1978 and 1983 due to fiscal imbalance and problems of balance payment, the economy adopted protectionism actions through rationing of foreign exchange and higher tariffs protectionism.	Government invests in large scale state farms to increase production of food commodities. Government subsidized transport of agricultural products from the farm gate to AGRICOM the state marketing board.

5.1.10 The Land Law

Under the constitution of Mozambique, all land is the property of the State. Land in Mozambique can not be sold, alienated, mortgaged or attached. The passing of the Land law (World Bank, 2006) settled land disputes which had the potential to get in the way of agricultural production. Land disputes had arisen soon after the civil war when previously displaced people returned to their farms which had been taken control of by investors (Coughlin, 2006). Despite the increase in land area allocated to cereal production, Mozambique is still considered as one of the most land abundant countries in Africa. This is because only 11 percent (4.5 million hectares) of its total arable area (36- 40 million hectares) is being cultivated (World Bank, 2006). The potential arable land is estimated to be 66 million hectares, only 37,5% Mozambican farmland is cultivated on arable land and only 12,5% is cultivated on potential arable land. Cereal production has shown a steady upward trend since 1990 except for a decrease in 2001 and 2002 caused by the floods. Biacuana, (2009) attributes this growth in cereal production to an increase in the area allocated to it as opposed to increased use of modern farming techniques and technologies.

5.1.11 Tariff and non- Tariff barriers

The past few years have seen a global trend in which regional integrations have been established. Their main aim has been to remove prejudice between foreign and domestic goods, services and factors of production (Hess, 2004). A free trade area is created when a group of countries eliminates tariffs and non tariff barriers on substantially all trade amongst its member states, but each country belonging to the alliance maintains tariffs on non members (Froling, 2000). In August 2008, the SADC region was declared a Free Trade Area with the objective of forming common political interests and supporting greater trade and investment flows between member states (Malakata, 2008). Since Mozambique is one of the member states of SADC, this could greatly influence both the input and output markets. For starters, Hubbard (2008) reported that fertilizer usage in the country is heavily constrained by high prices and scarcity due to low domestic production. There is therefore a heavy dependence on imports (mostly from South Africa) to meet the fertilizer requirements. The elimination of tariffs thus reduced the final price paid by consumers. The seed sector also benefited in a similar way because the majority of seed traders import from South Africa and other neighbouring countries (Wulf and Torp, 2005). The traders used to pass on the cost of the tariffs to the consumers hence elimination of tariffs works to their advantage in that the seeds will be cheaper.

Cross border trader also greatly benefited from the elimination of tariffs. The informal cross border trade was not greatly affected because they were not paying tariffs to start with. There are however associated costs such as bribing officials, rent seeking and transportation. Mozambique however depends on formal grain imports to meet domestic demand. The country imported 315, 000 metric tons of rice in 2009 to cover the deficit from local production which did not adequately meet domestic need. Despite increases in agricultural productivity, the country still depends on imports to sufficiently meet local demand of the major cereals.

5.1.12 Laws and Regulation of Seed Sector

The principal national law on seed is the Seed Act (Law Decree No. 41/94) enacted in 1994. The objective of this law was to regulate the approval and regulation of new variety, defines rules for seed production, inspection and commercialization. It also authorized MINAG through the National Directorate for Agrarian Services (DNSA) to implement legislatures and create institution to control and inspect seed sector (Wulff and Torp, 2005).

Wulff and Torp, (2005) mentioned other seed regulation affecting the seed sector:

- Regulation of seed imports (August 2001), the objective is to regulate the importation of seed of high quality, adapted to local condition, especially when the needs of the country are not covered by the national production.
- Regulation of Seed Production, Marketing, Quality Control and Certification (2001). The objective is to define the procedures for registration of seed producers, processors and distributors. It also establishes quality control for systems for production,

processing and marketing of seeds. It also establishes seed quality standards and defines right and obligation of seed inspector.

- Regulation for Protecting New Plant Varieties and Intellectual Property of the Breeder

5.2 Public – Private Partnerships in Grain Trade

Public- Private Partnerships (PPPs) are seen as the key to improving agricultural productivity in Africa. There is evidence of the Mozambican government forming partnerships with the private sector to increase production. The government is mainly involved through providing conducive legal and institutional environments for the private sector to operate in. Mozambique, like South Africa, partnered with the Standard Bank loan program aimed at opening loan opportunities to smallholder farmers in a bid to increase productivity. The program is in collaboration with Alliance for a Green Revolution in Africa (AGRA) (Juma, 2009). Large financial institutions have in the past, been reluctant to extend credit to the poor because of the perceived risk linked to them. The AIMS project in Mozambique was aimed at opening up and establishing competitive markets and agro dealer networks. Farmers were meant to access improved agricultural technologies primarily through these channels. The project was designed to include both the public and private sectors in achieving its objectives (CNFA, 2009). Other developing countries have also adopted this trend of the public and private sectors working together. In Ghana, Yara International initiated the Ghana Grain Partnership (GGP) in 2008. It encompasses 10 public and private organizations. The main objective is to strengthen the grain markets in that country by improving collaboration in all parts of the maize value chain. This is in support of a green revolution in Africa (YARA Report, 2008). The initiative was first introduced in Tanzania and it proved to be a success hence its adoption in other countries. It is yet to be introduced in Mozambique. PPPs can thus facilitate growth in the agricultural sector especially in developing countries.

PAMA (Agricultural Marketing Support Program, financed by IFAD) has been working on promoting agricultural markets, including training of the local traders and promoting linkages to product markets (PAMA, 2008). This program came to an end in 2009 and was replaced by PROMER which comprises almost the same objectives but different approach (value chain).

The newly approved Strategic Plan for Development of Agricultural Sector (PEDSA) seeks to improve local and global input and output markets in order to stimulate increase in production and productivity, food security, and generate income for agricultural stakeholders. (MINAG, 2001).

In 2010 the Multisectorial Strategic Action Plan for Reduction of Malnutrition (MAPRCM) was approved as well to promote good practices and interventions aiming to improve food availability and access.

6. THE WAY FORWARD

6.1 The political, economic and policy landscape

Mozambique has had many different faces in the last three decades. These faces have been shaped by political, economic, political, policy and natural factors. First, it was colonized and had to face the characteristics of a colonized state. Secondly it had to start the war for independence. Third, due to the dis-satisfaction in the distribution of power after gaining independence, civil war erupted and arguably more disastrous than even the colonial war, especially for marketing infrastructure. To date, politics remain a fundamental factor driving the future of Mozambique. Macro-economic discipline has been difficult to keep over the years but many believe that Mozambique has tried and in general the economy has been well managed.

Natural disasters have hit Mozambique badly in the last decade—floods and drought have been alternating and coping and mitigating strategies have not been firm enough –and no one is clear about the next hit. Perhaps out of frustration of previous policies not performing to the level expected, there has been a plethora of agricultural sector policies—one after another without necessarily taking stock of the performance of previous related ones. In order to understand the reasons behind the market structures, conduct and performance (including input and output markets) of today, it will be important to overlay the historical lenses mentioned above and attempt to get some cause and effect scenarios through time.

6.2 Drivers of input and output markets

A number of factors have either promoted or stifled the performance of these markets in Mozambique. The war for independence and the follow on protracted civil unrest which lasted for over a decade caused a heavy toll on peace which in turn held back agricultural production for decades. The infrastructural breakdown was phenomenal, massive displacements meant that farmers could not see the product of their investment in farm production as they would forcefully vacate the place sooner than the seed has produced a crop.

The negative impacts of colonial and civil wars, and natural disasters aside, the government, through their macro, meso and micro policies have also positively or/and negatively affected the efficiency of these markets. This has been through policies such as subsidization of fertilizer without clear regard on issues like proper targeting and crowding out of the efforts and roles of the private sector.

And because subsidy is just one factor in the value chain, one find that the road in most times is half traveled because the subsidy must go with good quality and improved seed as well as proper knowledge on the use of fertilizer. It is argued that only if governments could be patient and invest in short and medium term organizational and infrastructural requirements, this would at the end yield more than the impact of subsidies. This could be through investment in providing an enabling environment and supporting the private sector through provision of clearer lines of credit, tax credit as well as helping to get farmers organized to

enable the private sector operate more efficiently. Structures such as farmer groups is a good model in strengthening farmers' bargaining power as well as reducing transaction costs in the acquisition of inputs and disposal of farm output. The implementation of the newly approved Co-operative law will re-enforce the capacity of farmers groups to engage in a more business oriented perspective. Even do, farmers group must be operated as business providers for its members which is not the reality in most cases of farmers associations.

7. CONCLUSION

What we are seeing today in the agricultural development in Mozambique is a product of many years of interactive forces—natural and man-made. Today, there are many opportunities to revamp the sector and make it more productive. Internal opportunities include, but are not limited to peace and tranquility, increasingly good governance and gradually emerging trained manpower. External opportunities include the political and economic organizational frameworks—the Africa Union and its off-shoots; New Partnership for Africa Development (NEPAD) and Comprehensive Africa Agricultural Development Program (CAADP). In addition, Mozambique is one of the SADC member states and as such it stands to benefit from opportunities such as the customs union which has a bearing on the ease at which agricultural inputs and products can cross national boundaries.

Holistic approaches are needed in the identification, testing and promotion of input and output market models. There is no one size fits all solution. Neither the government nor the private sector can do it alone. There is therefore need to craft and realistically strengthen farmer-private-public-partnership beginning with tools such as innovation platforms where all key partners in a particular value chain are brought together to ponder their needs, constraints, opportunities and challenges and in turn develop practical implementable solutions. This process will in turn facilitate derivation of models that lead to solving many of the problems faced by value chain participants gradually leading to mutual profitable outcome solutions amongst the partners.

The government has a very important role in promoting efficient and effective markets for factors and products. This is mainly by providing an “enabling environment” –a term usually used but not necessarily always explained in full. In the context of input and output markets, an enabling environment would refer to encouraging and providing the necessary infrastructure—including but not limited to structures such as roads, bridges, guarantor role in credit provision to farmers by banks, support to market information systems including promotion of mobile phones, warehouses and ware house receipt systems, providing a transparent legal environment, etc.

More carefully planned policies –well funded and with clear monitoring and evaluation procedures are critical for a realistic forward leap. A careful look at previous agricultural policies in the last decade reveal unclear achievement of objectives, repetition of objectives

from one policy to the other, as well as very unrealistic time frames. All these result in non-effective policies.

In both factor and product markets, value chain approaches are needed if the problems are to be holistically attended to. Spot intervention models such as provision of heavily subsidized fertilizers in situations where farmers do not have the science and knowledge of these fertilizers may end up causing more harm than good to their land, their expected profits as well as to the state because of unprofitably used subsidies.

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