



Policy Paper

On

TRANSFORMING SMALLHOLDER FARMING TO MODERN AGRICULTURE IN UGANDA

By

National Planning Authority



2013

Table of Contents

Contents

List of Acronyms	ii
1. INTRODUCTION	1
2.0 The Problem	2
3.0 Objectives of the Paper.....	3
4. Smallholder Agriculture: challenges and opportunities.....	3
4.1 Challenges.....	3
4.1.9 Low Production and Productivity	8
4.2 Opportunities.....	9
5.0 Past efforts towards improving smallholder agriculture production and productivity	11
5.1 Plan for Modernization of Agriculture (PMA)	11
5.2 National Agricultural Advisory Service (NAADS)	12
5.3 Prosperity for All (PFA)	12
5.4 The National Development Plan 2010/11-2014/15.....	12
5.5 The Development Investment Strategy Plan (DSIP) 2010/11-2014/15	12
5.6 Declarations and Ratifications	13
6.0 Proposals for transforming Smallholder farming to modern agriculture.....	14
6.2 Agriculture Extension and Research.....	15
6.3 Mind-set and attitudinal change;.....	16
6.4 Provision of inputs (fertilizers and seeds);.....	16
6.5 Enhance availability and access to water for production.	16
6.5 Value Addition.....	17
6.6 Agricultural Education;.....	17
SUMMARY OF POLICY RECOMMENDATIONS	19
REFERENCES.....	21

List of Acronyms

AFDB	African Development Bank
CDA	Coffee Development Authority
CAADP	Comprehensive African Agriculture Development Programme
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
GDP	Gross Domestic Product
MFPEd	Ministry of Finance, Planning and Economic Development
IFAD	International Fund For Agriculture Development
NEPAD	New Partnership for Africa Development
NDP	National Development Plan
PfA	Prosperity For All.
PPP's	Public Private Partnership
FAO	Food Agriculture Organization
SACCO's	Savings and Credit Cooperatives
ODA	Official Development Assistance
OECD	Organization of Economic Cooperation and Development
UNFF	Uganda National Farmers' Federation
UBOS	Uganda Bureau of Statistics
UNIDO	United Nations Industrial Development Organization
UNECA	United Nations Economic Commission for Africa
NARO	National Agriculture Research Organization
PMA	Plan Modernization of Agriculture
NAADs	National Advisory Agriculture Services
UNHS	Uganda National Household Survey
MWE	Ministry of Water and Environment

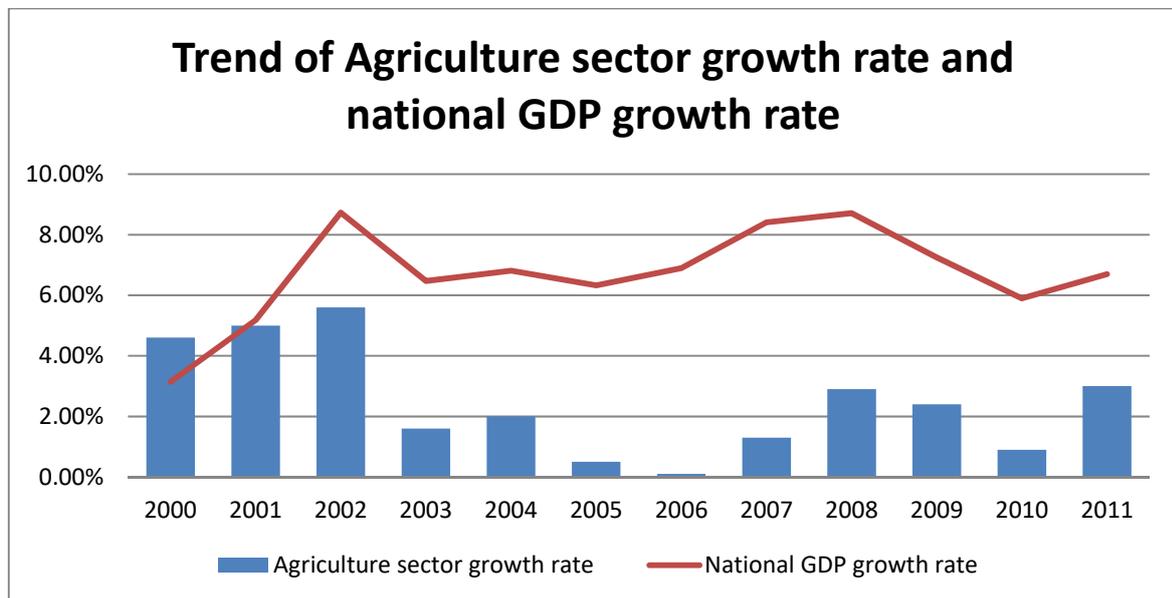
1. INTRODUCTION

Agriculture modernization is a critical component of Uganda's vision which is “**A transformed Ugandan society from a peasant to a modern and prosperous country**”. In line with this vision, the 2012 Agriculture Sector Annual Review (ASAR) was dubbed “A revolution in the agriculture sector” after a recognition that there is need to overhaul the operation of the sector so as to revitalize its role in socio economic transformation and national development. Modernization of the agriculture sector in Uganda may entail among others a shift from the prevalent highly diversified and subsistence system of agriculture to a more specialized and commercialized system. This requires: increasing public investments in the sector; increasing production and productivity, addressing environmental constraints including those arising from climate change and idiosyncratic risks like floods and droughts; addressing land tenure insecurity; targeting good agriculture advice to where it is needed; reducing risks associated with diversification to high value crops; strengthening the farm input delivery system; strengthening institutions and undertaking purposeful agricultural research.

Since independence 50 years ago, agriculture has continued to play a central role in defining Ugandan rural livelihoods. It employs over 80 per cent of the rural population, accounts for 22.9 per cent of Gross Domestic Product (GDP) and contributes over 40 per cent of total exports in addition to being a source of food security for many Ugandans (**UBOS 2012 Abstract**). Coffee is the major export earner and accounted for 21.6 percent of total exports in 2011 (**UBOS, 2012**). Uganda's main food crops are plantains, cassava, sweet potatoes, millet, sorghum, corn, beans, and groundnuts.

Agriculture has over the years determined the pace and direction of the overall economic growth for Uganda. As figure 1 shows, where agriculture slumped, as it did in the period between 2003 and 2007 growing at 1.3 per cent instead of the projected 3.8 per cent (IDA, 2010) for example, overall GDP was also reduced. The figure reaffirms that there is a close correlation between agricultural sector performance and overall economic performance. This implies that addressing binding constraints in the agriculture sector has trickle down effects on the overall economy.

Figure 1: Agriculture sector growth rate and National GDP growth rate.(2000 – 2011)



Source: Background to the Budget MFPED, MAAIF 2011 statistical Abstract & UBOS.

The farming community in Uganda is comprised of two categories of farmers namely; the smallholder farmers who are the majority (estimated at 80 percent), and the large scale farmers who mainly pursue plantation agriculture mainly in cash crops and livestock. According to MAAIF, a smallholder farmer is one who operates between 1-3 acreage and these are anticipated to increase in the near future given the rapid population growth rate. These farmers seldom use production inputs, pray for rains to come and water their crops and operate on a subsistence basis. They perceive agriculture as a means of survival rather than a business thus explaining the low production and productivity in the sector. The irony is that these are the farmers envisaged to bring about a transformation in the sector.

2.0 The Problem

Agriculture in Uganda is dominated by smallholder farmers who occupy the majority of land and produce most crops, livestock and fisheries products. The key long – standing challenge of smallholder farming is low productivity and limited commercialization that has frustrated the full utilization of the productive potential of agricultural innovations in the country. Agricultural production and productivity levels among the majority of smallholder farmers has remained well below its potential (MAAIF, 2010) given the available technology. A number of factors reinforce each other to keep smallholder agriculture at a low equilibrium. The low productivity on smallholder farms reduces enterprise profitability, making the sub-sector to be uncompetitive. Limited use of improved technology, poor infrastructure (resulting in high transport costs), lack of business skills and poor integration of the smallholder farmers particularly the poor and women

farmers, into markets and value chains limits the choice and profitability of enterprises leading to constrained household incomes.

Overall agricultural production has reduced in the past twenty years. The annual yield of food crops like Bananas (food type), sweet potatoes and cash crops like coffee and cotton have fallen in the recent past.

This trend must not be allowed to continue given that there is empirical research suggesting that smallholder farmers can potentially double their yields at an average of five years, subject to prudent application of external inputs and effective management of natural resources (FAO; 2010).

In cognition of the above, smallholder farming must be transformed if the agriculture sector is to be modernized and positioned to contribute to the attainment of Uganda's vision of "*A transformed Uganda's society from a peasant to a modern and prosperous country within 30 years*".

3.0 Objectives of the Paper

The general objective of the Paper is to propose ways by which smallholder farming can be transformed so that it does not only meet the food security needs of the population but is re-organized to produce extra volumes for sale in the domestic, regional and international markets. Specifically the paper sets out to:

- i. highlight the current status of smallholder agriculture focusing on the challenges and opportunities;
- ii. examine the different efforts that Government has made towards improving smallholder agriculture production and productivity;
- iii. make some proposals on how smallholder farming can be transformed into modern agriculture and therefore contribute to attainment of Uganda's vision of "a transformed Ugandan society from a peasant to a modern and prosperous country within 30 years"; and
- iv. Highlight policy recommendations.

4. Smallholder Agriculture: challenges and opportunities

4.1 Challenges

The smallholder agriculture sub-sector which accounts for the bulk of food production in Uganda is characterized by subsistence where planting decisions are made principally with an eye towards what the family will need during the coming year and secondary towards market prices; low productivity emanating from low investment from both public and private players and vulnerability to natural vagaries such as droughts and floods. The sub-sector is mainly dominated by peasant farmers who cultivate small pieces of land averaging between 1 – 3 acres. These farmers

practice agriculture on a subsistence basis and they view it as a means of survival rather than a commercial activity. The challenges faced by small holder farmers are cyclical in nature and cannot allow these farmers to fully realize their potential and boost agriculture production and productivity. The subsequent discussions expound some of the challenges faced by smallholder;

4.1.1 Land Tenure, Access Rights and Land Management

The challenges regarding land tenure and inadequate access to land can be presented from different perspectives. The constraints related to the tenure system, such as insecurity of land tenure, unequal access to land, lack of mechanism to transfer rights and consolidate plots, have resulted in under-developed agriculture, high landlessness, and food insecurity and degraded natural resources in most parts of the country. Furthermore, the available land in most parts of the country is overly subdivided into small uneconomic units, resulting in fragmented production systems and low productivity. Most farmers operate between 1 – 3 acres and the continuous cultivation of these fields has led to a fall in production levels. In addition to this very low absolute level of land holdings, the distribution of available land is highly inequitable. Land ownership issues however, also go beyond small sizes of plots. According to the 1995 Constitution, land belongs to the people and in practice too traditional land tenure is dictated by the subsistence agriculture system. Equally important, in terms of access to additional land, is the management of the existing one. In Uganda like other countries in east Africa, agricultural productivity is threatened by land degradation, erosion and loss of soil fertility.

4.1.2 Financing Smallholder Agriculture and Access to Credit

Access to finance remains low for the vast majority of smallholder farmers. For any investment, smallholder farmers in Uganda depend on savings from their low incomes which limits opportunities for transformation and expansions. The high interest rates charged by banks inhibit smallholder farmers from accessing credit. Although Microfinance Institutions (MFIs) have come up with innovative ways of taking financial services to smallholder farmers who previously were un-bankable clients, they have so far largely failed to reach the poorer section of the smallholder producers. These MFIs and Savings and Credit Cooperatives (SACCOs) have had mixed performance records (Unpublished work of MFPED). MFIs make mostly short- term loan, often with group guarantees and frequent payment schedules. This type of financing is only good for trading enterprises with high turnover and not in farming enterprises with more irregular and seasonal cash flows.

Furthermore public spending on agriculture has been low at an average of less than 3 per cent of total expenditure since 1980. In general, Government expenditure on agriculture declined from 9.7 percent in 2007 to 4.2 percent in 2012(**Uganda's FY 2012/13 post budget analysis**). This is far less than what Governments pledged in Maputo, Mozambique. The low level of public spending in smallholder agriculture has serious concerns given that the target of Government in

the sector is to transform the majority of subsistence farmers and graduate them towards commercial agricultural production.

Table 1: Uganda's Public Expenditure on Agriculture (As Percent of Total Expenditure) in comparison with Tanzania, Kenya and Africa in general

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Uganda	4.2	4.2	7	9.7	5.2	3.5	5.4			4.8	3.5
Kenya	5	4.6	5.1	6.6	5.9	4.4	4.8				
Tanzania	4.5	6.8	5.5	5.5							
Africa	4.5	5.6	6.5	6.5	8.2	7.3	8.0				

Source: AfDB (2002), IMF (2007) & ReSAKSS (2009)

Although the total amount of Official Development Assistance (ODA) to agriculture and rural development in Uganda has been increasing in absolute terms, the share has followed a declining trend.

4.1.3 Access to Input and Output Markets

Improved access to input and output markets is a key precondition for the transformation of the smallholder farming from subsistence to modern and commercial production. Inability to link markets and weak value chains fail to provide incentives to farmers to adopt to improved technologies and pursue more commercial agriculture. Smallholder farmers in particular need to be able to benefit from efficient markets and local-level value addition, and be exposed to competition. According to 2005/2006 Household Survey, 30 per cent of communities surveyed did not have access to roads that were passable even in the dry season and two thirds of communities any bus or taxi connections. It is estimated that about 50 percent of smallholder farmers live five hours or more from any market center. Besides the poor physical infrastructure, smallholder farmers have a low bargaining power when it comes to marketing. This is exacerbated by weak farmer organization at individual and collective level. As a result, farmers are left at the mercy of crafty middlemen who exploit them. In addition, poor farmer organization as evidenced by weak cooperatives undermines any efforts of collective marketing. Without a clear marketing strategy for farmers' produce and a swift transport network, agriculture transformation will remain more of a myth than a reality. It should be noted that coordination and collaboration between farmers and buyers is critical in meeting market demand. A ready market and profitable prices are likely to inspire farmers to invest in quality, quantity, variety to ensure a steady supply.

On the input side, the average use of fertilizer application for arable crops in Uganda is far less than the World average of 100kg/ha/year (Smaling et, al and Ariga et al, 2006). Smallholder farmers have continued to use low levels of quality inputs such as seeds, fertilizers and pesticides. This state of affairs is a result of limited availability and access to production inputs such as: fertilizers, irrigation, pesticides and herbicides. Local seeds are the mostly used inputs in the country with about 91.7 per cent. According to Uganda Census of Agriculture 2008/09 out of the

3.6 million Household that were asked about use of local seeds, about 3.3 million reported in the affirmative. The low income status of small holder farmers compromises further their ability to access production inputs while those who have access are demoralized by the adulterated inputs that have flooded the market especially the poultry and fish sub sectors. Individual purchase of these production inputs further aggravates the already high prices.

On the output side, because smallholder farming is a subsistence system of production, marketing is underdeveloped and inefficient. Lack of adequate storage facilities constitute another constraint to both marketing and food security.

Another challenge facing smallholder farming is the inability of the farmers to get linked to the supermarket chains that exist nationally, regionally and internationally. The main hindrance to the linkage is the fact that smallholder farmers cannot meet the high quality and safety demands as well as delivery schedules that these regional and international value chains require hence preventing them to compete in such markets.

4.1.4 Infrastructure

Inadequate infrastructure in form of storage facilities, transport, irrigation equipment have made farming unprofitable for the smallholder farmers. The road system which is the most important for market development in terms of distribution of inputs and outputs to and from farms is the biggest infrastructural bottleneck facing smallholder agriculture in Uganda. Most of the roads are murrum and become inaccessible during the rainy season. This not only creates food shortages in the urban areas but also results into economic losses especially for perishable produce. This is one of the factors that deny farmers the opportunity to reap from the high food prices in urban areas. Similarly, lack of storage facilities is another factor indirectly undermining use of production inputs like fertilizers that boost production.

Underdeveloped rural roads and other key physical infrastructure have led to high transport costs for agricultural products to the market as well as farm inputs reducing farmers' competitiveness. In addition electricity is not available in many rural parts of the country and is also very expensive, lack of storage and processing facilities constrains marketability of perishable goods such as dairy products, fish, fruits and vegetables.

In addition, irrigation facilities where they exist are poor, inadequate and a negligible percentage of smallholder agricultural output is produced under irrigation compared to about 33 per cent in Asia (AfDB/IFAD,2009), post-harvest losses are estimated at 40 per cent and may even go up to 70 percent in some fruits and vegetables (UNIDO, 2007).

4.1.5 Agricultural Extension and Innovation

For a long time now, research and extension services have been disintegrated and made ineffective for any technological transformation to take effect. Public sector extension services have been

drastically reduced and extension services have suffered budget cuts and this has resulted in a situation where for many smallholder farmers, the national public extension services have all but disappeared. Smallholder farmers have been hard hit by this state of affairs and are challenged with new private institutional forms of extension service delivery system. The current agricultural contract extension system has not been fully appreciated by many smallholder farmers who cannot respond easily to the new form of information delivery/extension delivery system. Information is very important since it guides decision making and can avert future losses and predicaments. However, smallholder farmers seldom participate in agriculture innovation mainly due to lack of access to information and continue planting the less productive variety which leads to low returns and incomes. The key challenge facing policy makers in Uganda is to address the various ways in which smallholder farmers mostly residing in rural areas have become isolated from mainstream commerce and communication. One example of such isolation is a lack of access to good quality advice and training in farming practices of the sort that was provided by the defunct national extension services.

4.1.6 Pests and Disease Control

Pests and diseases have remained a big threat to increasing agriculture production and productivity. The loss of 35-40 per cent of crops to disease and pests severely limits productivity of both food and cash crops. Livestock diseases, particularly of cattle and waterweed that has fish catch have been noted. The NDP highlights that rural economies have been severely affected and a number of farmers receded into poverty due to disease infestations, such as banana wilt, coffee wilt, and foot and mouth disease among others. The incidence of pests and diseases has increased tremendously in the recent past mainly because of the increase in temperature, long droughts and absence of guidelines on how to act in the face of these upheavals.

4.1.7 Policy-Related and Institutional Constraints

Uganda has over time implemented a series of economic reforms and instituted agricultural policy reforms as well as strategic frameworks. So far, however, hopes that policies would bring about positive and durable results remain unmet. The remaining policy bottlenecks include those that pertain to land tenure and land distribution to different segments of the population, marketing of agricultural commodities and inputs, and price regulatory frameworks. Over the years, for example, the inappropriate agricultural policies related to land distribution and liberalized price regimes have been identified as some of the constraints to investment in agriculture in general and smallholder farming in particular. This has turned out to be a handicap to increased production and productivity.

Despite the adoption of the Plan for Modernization of Agriculture (PMA) in 2002 and NAADS programme the smallholder farmers still receive a disproportionately small amount of developmental resources. It is now clear that the inability of Government to implement these programs stems from weak administrative and technical capacity particularly in (MAAIF) and its

associated semi-autonomous bodies. Institutional support to agricultural development in Uganda has been inconsistent and largely inadequate. As elsewhere in Africa, institutions responsible for agricultural development need to be strengthened, with an emphasis on well-functioning markets and risk management (FAO, 2009). As the experience of successful agricultural institutional / policy change shows, the importance of reforms for sustained productivity improvements in agriculture cannot be overstated. For example, the increase in rice output and productivity in Vietnam during 1981-1994 can be ascribed mainly to market reforms and in spite of modest growth of most inputs and with limited technological change. The key factor among the Vietnamese market reforms was an institutional change – reform of land property rights, which markedly improved the economic incentives of farmers to use the land efficiently (Che et al., 2006).

Experience of Tanzania illustrates that market reforms are necessary but not sufficient for raising agricultural productivity. Even though the country undertook substantial market-oriented reforms during the 1990s, agricultural performance remained disappointing. The main bottlenecks to farmers' more effective supply responses to improved incentives were structural – limited access to markets, credit and inadequate infrastructure (Danielson, 2002). Hence the combined experiences of Vietnam and Tanzania show the importance of reforming the institutional framework underpinning smallholder agriculture as well as the complementarities of reforms in the area of infrastructure, access to markets and to credit (FAO.210).

4.1.8 Climate Change

Climate change resulting from mostly global warming is taking toll on smallholder farmers given their over dependence on nature for agriculture. Most of crop and livestock production at smallholder farming level are rain fed and therefore susceptible to weather fluctuations. The poor smallholder farmers are the most vulnerable to the adverse impacts of climate change because of their limited capacity to cope. Over the last decade the frequency of droughts and floods in Uganda has increased resulting in crop failure and loss of livestock. The rains are erratic, unpredictable and poorly distributed accompanied with long droughts characterized by high temperature. Consequently, farmers have lost track of the planting season and have incurred heavy losses when heavy rains set in on the verge of the harvesting season. The absence of early warning systems aggravates the problem. The rise in temperatures has had significant impact on the yields of sensitive crops like coffee and cotton while increasing the incidence of pests and diseases. Furthermore with increased land degradation, land resilience has been reduced and the effect of drought and floods exacerbated by unavailable or inadequate early warning systems.

4.1.9 Low Production and Productivity

Small holder farmers face a challenge of low production and productivity levels. As earlier noted, agriculture in Uganda heavily relies on nature and the continuous cultivation of similar crops on small acreage has seen production levels of both food crops and cash crops plummet over the years. In addition, the farmers' mindset that Ugandan soils are naturally fertile has also retarded the use of production inputs to boost production and productivity. This perception which was valid in the

past has lost meaning today given the big population size and competition for land from other sectors that undermine farming methods like shifting cultivation ensured high production and productivity with minimal use of inputs. This debacle trend is a result of a number of factors.

FOOD CROPS: Falling Trend of various food Crops in ‘000’ Metric Tonnes. (1995/96 – 2008/09)

	UNHS 1995/1996	UNHS 1999/2000	UNHS 2005/06	UCA 2008/09
Maize	537	739	2,441	2,362
Banana (food type)	7909	5545	4176	4018
sweet potatoes	2990	2620	1,695	1819
Cassava production	2746	2246	1656	2894
Pigeon peas	5	9	11	
Sim Sim	73	93	106	99

Source: Crop Area and Production report volume IV (UBOS 2008/09)

4.2 Opportunities

4.2.1 Rising Global Demand

The increasing trend in global demand in both developed and emerging countries driven in part by rising population growth has created opportunities for expansion of smallholder agriculture. The demand in emerging countries like China and India where population has doubled to an estimated 1.2 billion and 1.33 billion in 2012 will provide opportunities for smallholder farmers to expand production. Although these countries have proved to be self-sufficient in food production until recently, inadequate cultivable land will make future imports of agricultural products inevitable. Furthermore, smallholder agriculture is to be economically sustainable because of expanding urban centers, rapid economic growth and accompanying demand for more diversified products like vegetables.

4.2.2 Discovery of Oil and Gas

The recent discovery of oil and Gas in Uganda, Kenya and Tanzania constitutes an opportunity for future expansion of production and productivity rise of smallholder farming. The export of oil and gas is expected to raise incomes and the demand for food and other agriculture commodities. With better standard of living people demand more nutritional meals including diversified agriculture products like fruits and vegetables. Smallholder farmers may need to position themselves to tap into these future markets that will exist in the country and region as a whole.

4.2.3 Success Stories from other Developing Countries

The success stories of India, China, South Korea and Vietnam where smallholder farming was the bedrock of highly successful agricultural transformation give hope for a bright future and a greater role of smallholder farming in modernizing the agriculture sector in Uganda. Countries like

Vietnam have changed from being net importers of food (rice) to the largest exporter largely by smallholder farmers who constitute 70 per cent of the rice farmers in the country. With such an example there is reason to believe that Uganda's smallholder farmers will be able to participate actively and contribute to the agricultural modernization in Uganda.

4.2.4 Investment Opportunities

The potential of smallholder farming can be illustrated by the enhanced income generation from other parts of EAC agricultural export sub-sectors. In this context, Kenyan horticulture exports often serve as an example of smallholder agricultural export success in the region. Horticulture constitutes one of the largest earners of foreign exchange in agriculture, with over 50 percent of proceeds being generated by smallholders. According to Minot and Ngigi (2009), the key factors behind the Kenyan horticultural success were: (i) a real exchange rate aligned with its equilibrium value; (ii) macroeconomic stability; (iii) an enabling investment climate; (iv) solid infrastructure; (v) links with European markets, and (vi) deliberate efforts to facilitate cooperation between farmers and exporters. These factors were complemented by training and support for small-scale irrigation. The lessons of the Kenyan success can be applied to Uganda which has similar agro-ecologies and production potential.

4.2.5. Market Information and Partnerships

During the past 20 years, there have been advances in cooperation between countries in the East Africa region and at the level of the African Union (AU), which have supported regional trade. As progress is made in this area, trade within East Africa and Africa generally has been increasing, although it is still well short of potential. In the immediate future, the main markets for Ugandan smallholder farmers are within the East African region and in Africa as a continent.

These markets are large and growing faster than international markets for most agricultural commodities. Moreover, the use of local radios, mobile phones and internet has increased the avenues for timely and wider delivery of useful market information (AfDB, UNECA and OECD, 2009). For example the Busoga Rural Open Source Development Initiative (BROSDI) by Ugandan women has helped to empower smallholder farmers to make quick and informed decisions that will enhance productivity.

4.2.6 Supermarkets, Contract Farming and Collective Action

Supermarket operations, which vertically integrate collection, distribution, and retail sale of food, are becoming increasingly important in East Africa and Uganda in particular although they still have a less share of food sales. In principle, the growing importance of supermarkets would make smallholder farmers more responsive to changes in prices and consumer tastes by linking customers and farmers more effectively. However, in practice supermarkets require uniform quality, minimum large quantities, consistency and high standard of hygiene and timeliness of supply that can be difficult to meet for smallholder farmers. Smallholder farmers, who are often

undercapitalized and often undereducated, struggle to meet these requirements. These challenges are easily surmountable with good extension services, contract farming and collective action, as exemplified by the Eagle project launched by Uganda breweries in 2002. Of critical importance now is awareness of and compliance with standards for high-value products. If well-utilized, stronger linkages of smallholders with supermarket chains are likely to improve marketability and profitability of their products.

5.0 Past efforts towards improving smallholder agriculture production and productivity

The Government has pursued previous agricultural development policies and strategies aimed at transforming agriculture sector from being predominantly peasant to commercial type of farming. The Economic Recovery Programme (ERP) introduced in 1987 and the Structural Adjustment Policies of the early 1990s, focused on rehabilitation of the infrastructure for traditional exports (coffee, cotton, tea and tobacco); development of non-traditional exports; removal of physical, technical and institutional constraints for agricultural development; agricultural pricing, trade and marketing liberalization and strengthening agricultural research and extension. As a result of the implementation of these policy and institutional reforms the agricultural sector experienced a very high annual growth rate of 6 percent per annum (1992 –1996). Specifically, the marketing of agricultural produce was liberalized, export taxes abolished and other market distortions removed, and regulatory and promotional agencies were set up for key export crops, quality control and market information dissemination. Despite these achievements, the welfare of the majority of smallholder farmers has not improved substantially. Household incomes are still low and food security is not guaranteed. A recent survey by students of the Department of Agricultural Extension/Education of Makerere University in 2011 in 14 districts indicates that at any one time, about 40 per cent of the population is food insecure.

5.1 Plan for Modernization of Agriculture (PMA)

The Plan for Modernization of Agriculture (PMA) was a holistic, strategic framework implemented between 2001 and 2009 and aimed at transforming subsistence farming to commercial agriculture. The PMA had seven pillars: research and technology development, national agricultural advisory services, strengthening technology system and pathways, agricultural education, improving access to rural finance, agro-processing and marketing, sustainable natural resource utilization and management. However, significant progress was principally made in only two of the of the seven investment pillars of the PMA: those of agricultural research and agricultural advisory services. Due to this state of affairs, Government identified areas of weakness of the PMA and earlier policy frameworks and addressed them in the five-year Agricultural Sector Development Strategy and Investment Plan (DSIP) 2010/2014/15 which is in line with the priorities identified in the National Development Plan (NDP) 2010/11-2014/15.

5.2 National Agricultural Advisory Service (NAADS)

NAADS was one of the pillars of the PMA created to co-ordinate service provision to subsistence farmers. Besides the traditional advice on productivity enhancing technologies and soil conservation, knowledge and skills development, marketing, storage and agro-processing feature highly as part of the content of the advisory services. Under the NAADS programme there has been a shift from the public being the major provider to the private sector as the main provider. Although in the short to medium term public expenditure has been increased in this area to fund this public good, it was hoped that in the long term, private sector funding was expected to exceed public funding of agricultural advisory services. This has not happened and the smallholder farmers especially in the crop sub-sector have been left with limited or no advisory services in most parts of the country.

5.3 Prosperity for All (PFA)

The PFA was embedded in the 2006 NRM manifesto and sought to improve the livelihood of all farmers through agriculture commercialization. The major pillars of the PFA were production, value addition, marketing and microfinance. The principle of the PFA program was to identify and support economic enterprises that would enable households to earn daily, periodic and long term incomes, with a target of UGX 20 million per household per year. The following principles are the major focus in the implementation of PFA;

- i. At least each household should have a daily income
- ii. Each household should have food security
- iii. Households to be organized into marketing groups for purposes of achieving enough volumes and attract buyers.
- iv. The end result is poverty alleviation.

5.4 The National Development Plan 2010/11-2014/15

The NDP was launched in 2010 and seeks to achieve growth, employment and socio-economic transformation for prosperity. It identifies Agriculture as one of the Primary sectors with a slower than desirable growth rate that have undermined achieving much faster economic growth and socio economic transformation with un tapped potential for socio economic transformation. The NDP seeks to transform the agriculture sector by unlocking the most binding constraints through: Enhancing production and productivity, improving access to and sustainability of markets, creation of an enabling environment for competitive investment in the sector and enhancing institutional development in the sector. It is envisaged that implementation of these objectives will transform the sector from its current subsistence state to a competitive, profitable and sustainable sector.

5.5 The Development Investment Strategy Plan (DSIP) 2010/11-2014/15

The DSIP 2010/11 to 2014/15 which is aligned to the NDP is the agriculture sector revised road map that guides public action and expenditure during the tenure of the first NDP. The DSIP intends

to streamline institutional constraints, improve rural finance and address the problem of limited use of agriculture inputs. The DSIP development objectives are to ensure; increase in rural incomes and improvement of livelihoods, household food and nutrition security. Investment under DSIP have been packaged under four programmes representing the key areas of opportunity: (i) Enhancing production and productivity; (ii) Improving Access to Markets and Value Addition; (iii) Creating an Enabling Environment, and (iv); institutional strengthening in the sector. The DSIP stipulates that the primary role of the public sector will be to remove constraints that prevent the private sector from investing in value addition.

5.6 Declarations and Ratifications

Uganda is privy to the Comprehensive African Agriculture Development Framework compact which was established as part of the NEPAD in July 2003. The goal of the Comprehensive African Agriculture Development Programme is to eliminate hunger and reduce poverty through agriculture. African governments envisaged to achieve this through increased public investment in agriculture by a minimum of 10 percent of their national budgets and raise agriculture productivity by at least 6 percent per annum. In addition, the CAADP framework identifies four key pillars for food security improvement and agricultural investment (1) Sustainable Land and Water Management; (2) Market Access; (3) Food supply and Hunger; and (4) Agricultural Research. One of the most important is the formulation of national investment plans and Uganda is implementing CAADP through the agriculture sector DSIP.

Uganda also ratified the Maputo declaration in 2003 at the second Ordinary assembly of the African Union in July 2003 in Maputo. This conference was crowned with African Heads of state and government endorsing the Maputo declaration on Agriculture and Food Security in Africa. The declaration contained several important decisions regarding agriculture, but prominent among them was the “the commitment to the allocation of at least 10 percent of national budgetary resources to agriculture and rural development policy implementation within five years. Uganda is still lagging behind on this target given the budget allocation which averages at 4 percent of the total budget.

6.0 Proposals for transforming Smallholder farming to modern agriculture

Smallholder farming has the potential to contribute to increased agriculture production and productivity, this potential may not be tapped into unless the Government intervenes and addresses the existing challenges outlined in 2.0 above. Below is a presentation on some of the proposed interventions required to transform smallholder farming to modern agriculture:

6.1 Land Reform

The land question in Uganda has been and continues to be a political issue with potential to becoming volatile. In this regard, the ownership, control and management of land continues to be a critical factor especially in its use as input for smallholder farming. Land has been at the center of the constitutional and legal disclosures in Uganda drawing legitimacy from historical as well as contemporary political exigencies (Draft Uganda National Land Policy, 2011).

Currently smallholder farmers practice poor agricultural practices that have resulted into increased land degradation due to soil erosion, de-forestation, over grazing and water contamination and stress conditions. Over population in some parts of the country like in Busoga and Bukedi regions has resulted into further fragmentation. The gender dimension of accessibility and land tenure security remains critical and the issue of low productivity cannot be over emphasized.

Land grabbing has been reported in many parts of the country especially in central region where the cost of land has been multiplied more than two hundred per cent in the last five years.

A land reform that has the following components is urgently required and recommended:

- Revisit the Constitution Article relating to land ownership (Article 237(1) that states that land belongs to the citizens of Uganda;
- Ensures that there is security of tenure especially for smallholder farmers in all parts of the country;
- Discourages land fragmentation arising from inheritance practices, poverty, overpopulation, etc.
- Facilitates the operationalization of the Zonal Agricultural Strategy that aims at promoting production, productivity, marketing and agro-processing; and
- Encompasses the gender dimensions especially with regard to land ownership, inheritance and disposal.

6.2 Development of Public Private Partnership (PPP) in providing agriculture finance to smallholder farmers.

The Government under the PMA recognized the importance of rural financial services in savings mobilization and in the provision of production and marketing credit for subsistence farmers. However, Government did not become involved in the direct provision of micro-financial services to the farmers, because Government does not have the necessary expertise in this field and does

not have the financial resources to develop the industry. Moreover, Government provided financial services, especially credit services, are inevitably subject to non-commercial pressures which undermine their viability and sustainability.

To realize the potential of smallholder agriculture and an acknowledgement that neither party (public and private) can do it alone, there is need to bring together the public and private sector stakeholders to fulfill the aims of providing agriculture finance to smallholder farmers who may be involved in food, cash and commercial farming. There should however, be coordination and facilitation services offered to ensure that each partner's investment is complimentary and supportive along individual value chains as well as allowing each partner to draw reassurances that other elements are being supported in a similar way.

Strong PPPs can be developed around input supply, commodity marketing, the introduction of commercial bank lending to farmers, training farmers in agri-business and risk management among others.

The extension service can be used as a vehicle to provide financial education to smallholder farmers. Currently the service is only focused on educating farmers on agronomic practices and efforts are being made to integrate extension and research. The time is now to re-orient the extension service to be business oriented so that it can be used to educate the farmers about financial management including providing knowledge about where and how to obtain agriculture finance and the best use of it.

6.2 Agriculture Extension and Research

The existing extension system should be invigorated to enhance small holder Agriculture transformation. One of the major functions of extension services is to disseminate useful and practical information through well planned and carefully conducted demonstrations. These demonstrations should be based on research and illustrate the application of appropriate technology to address the missing link in farming system. Effective extension is problem oriented and begins by diagnosing the problems facing the small holder farmers followed by design of demonstrations that have a panacea to the prevalent problems. This makes farmers to copy the good practices and replicate them on their farms. There is need to train more extension workers and dispatch in rural areas to reduce on the human resource constraint were one extensional workers serves hundreds of small holder farmers.

Agriculture research is paramount if smallholder farming is to be transformed into modern agriculture. Uganda is doing well in the area of agriculture research given the improved varieties that NARO and other research institutes have come up with. However, there are some areas that need to be strengthened like dissemination of the research findings and ensuring that on farm yields match the research station yields. This can only be achieved by making agriculture research highly participatory so the farmers can effectively implement what they are part of. Besides this, some research based agriculture inputs like seeds have failed to yield in some areas of Uganda because

they are highly exotic and no soil science was carried out to ascertain whether they can be supported. Researchers should find ways of how to liaise with small holder farmers to transform subsistence farming to modern agriculture.

6.3 Mind-set and attitudinal change;

One of the greatest challenges to transformation in Uganda is the negative mind-set and attitudes where agricultural is viewed as a dirty job and often seen as a punishment especially at early stages of socialisation where pupils are often sent to work on school gardens as a punishment for late coming, absenteeism from class, poor performance in class etc. Governments have in a number of occasion brought up programmes aimed at improving peoples' lives through agricultural but due to negative mind-sets, these programmes are misconceived as political rewards consequently mismanaged. It is now becoming increasingly difficult to attract youths into farming especially in light of low productivity per unit area.

6.4 Provision of inputs (fertilizers and seeds);

A large proportion of the agricultural land being cultivated by majority of the small holders has lost its fertility to over cultivation or long monoculture practices. To restore the productivity of such land, farmers ought to apply fertilizers in order to restore its fertility and increase yields and productivity. However most of these farmers cannot afford to purchase fertilizers and where some could, they may not know the right or appropriate fertilizer to purchase, let alone how to apply on their farmers. The government therefore needs to strengthen the Agricultural Chemical Board in order to regulate the quality of chemicals including fertilizers being imported and traded in the country and thereafter set up a scheme where farmers can be pre-financed in form of inputs rather than physical cash.

In the same vein, Government also needs to revive the National Seeds scheme for better and higher yields. Many smallholder farmers tend to replant seeds from the preceding harvests and have done it for over many years and the most of these seeds are now tired thus resulting into low yields.

Once the right inputs (chemicals, seeds, herbicides) are in place, input stockists/dealers should then be encouraged to set up outlets within easy access to the farmers in order to reduce transaction costs and time on the side of the farmers.

6.5 Enhance availability and access to water for production.

Total land area under formal irrigation in Uganda is 14,418 hectares (36,612 acres) out of an estimated 560,000 hectares with irrigation potential (MWE, 2010). Irrigation is one of the least users of water and Uganda's agriculture has thrived on natural rains over the years though this is becoming impossible due to the advance of climate change. The limited use of irrigation has dented agriculture production and productivity over the years because smallholder farmers cannot afford irrigation costs. This calls for smallholder irrigation schemes (SIS) appropriate to smallholder farmers to kick start the intervention. Irrigation can empower farmers and link them to market value chains through sustainable production.

Research and expenditure in the agriculture sector should partly focus on identifying cost effective smallholder irrigation strategies that are appropriate to smallholder farmers in Uganda. Good technical skills are pertinent for the success of smallholder irrigation schemes hence farmers ought to be trained to effectively utilize and maintain irrigation infrastructure. Access to irrigation can also enable farmers to adopt new technologies, open up new opportunities on farm and off farm in addition to improving incomes, livelihood, and quality of life hence over all modernization and transformation. This is because irrigation guarantees results into improved yields, reduced crop losses, improved cropping intensity and increased cultivable area (Namara et al, 2010).

6.4 Improving agriculture marketing

Marketing has remained a big challenge not only to the smallholder farmers but also to the big ones as well. However, the smallholder farmers are more disadvantaged because they produce in small quantities that may not be economically attractive to prospective buyers without consolidation. The other challenge relates to the quality of the produce which is normally not up to standards, uniform and consistent.

Smallholder farmers need to be organized in strong groups so as to sell their products at higher prices, receive key services such as agricultural inputs like fertilizers and improved seeds. Once organized in groups, smallholder farmers should be encouraged to undertake contract farming so that their products or range of products have guaranteed markets. Contract farming creates certainty and commitment from both the farmers as sellers and the buyers and eliminates incidences where farmers change their minds and sell products to other buyers due to price differential.

Smallholder farmers need infrastructure for storage and ware housing to reduce post-harvest losses and product deterioration. This will empower farmers to take advantage of the price dividends out of season. This should be supplemented by the ware house receipt system already being practiced in some parts of the country.

6.5 Value Addition

Studies have shown that Uganda is losing a lot of money in the export of unprocessed goods such as grains instead of exporting processed products that would fetch more money for the country on the international market. Value addition should be encouraged as part of the agro processing strategy which guarantees profitability and extends the product shelf life hence incentives for more production. The Government should therefore invest in establishment of agro processing industries or facilities on Built, Operate and Transfer (B.O.T) principle.

6.6 Agricultural Education;

Small holder farmers have taken farming or agriculture as an inheritance with very little orientation on the market requirements. These farmers need basic agronomic training to reshape their way of farming including basic record keeping so that they can appreciate and treat farming as a business and not a mere hobby. Government need to revive and/or set up farmer schools where they none

existent including school garden programmes as children can be a strong impetus in influencing and thus transforming agricultural farming system. Care should however be taken not use school gardens in administering punishments as this would create negative attitudes from the children.

6.5 Mainstreaming women farmers in agricultural policy:

In Uganda the majority of smallholder farmers are women who produce most of the food, and are responsible for ensuring family nutrition. Women comprise 80 per cent of all those working in agriculture and around 28 per cent of all household are female-headed (Actionaid, 2010).

The Government needs to provide extension services to the women who currently are not able to access existing extension services. Although there is evidence that although there is some participation of women in farmer groups, men still retain significant control over the NAADS processes and actual decision making, in supposedly women only groups. Targeting of women smallholder farmers is very important for extension service delivery because they are the majority.

In Uganda only 9 per cent of all credit goes to women. Both Commercial banks and MFIs regard women as being risky to lend to because they do not practice commercial agriculture are therefore considered not creditworthy. Women access loans from microfinance institutions nearest to their homes, that are normally small amounts that cannot make any meaningful investment and yet still they have to be serviced on a weekly basis. It is important to note that some MFIs still require spouses to also sign on the loan forms before any services can be rendered. This also limits the women from taking independent decisions on the use of the loans.

The needs of women smallholder farmers are often ignored when designing agricultural research and development. The traditional farming methods and knowledge of the poor are often ignored and bypassed. In Uganda most of the agriculture research is focused on increasing yields of cash crops grown by commercial farmers (male) who are a small fraction of the farming population. Little funding is provided for research on crops like millet, sorghum and traditional vegetables which are crops normally grown by women. In addition limited research has been undertaken on finding labour saving technologies that are critical in saving women the hard work given that they still use the hand hoe and spend close to 170 hours per month in household chores. This leaves them little time to engage in production of crops and keeping livestock or fishing.

In conclusion, the policy makers and researchers ought to talk more to small holder farmers to enhance formulation of appropriate policies that address the needs of farmers. These farmers account for about 70 percent of the total farming population implying that the neglect of these farmers' is equivalent to the neglect of the agriculture sector as a whole.

It should be noted that all the above proposals have been mentioned elsewhere; however the key challenge has been the lack of implementation for which this paper tends to focus and make emphasis. We therefore highlight the need for prioritization among the above proposals and recommend the following to kick start the process of modernization and Transformation;

SUMMARY OF POLICY RECOMMENDATIONS

1. Access to land

- ❖ Government should ensure that smallholder farmers have access to land for production

2. Institutional reforms in Agricultural Extension

- ❖ A single spine extension system should be established and a Directorate of Extension be created at the MAAIF to create a unified and guided chain of command right from the sub-counties through the District Production Co-ordinator to headquarter.

3. Management of Farm Inputs

- ❖ NAADS should be divorced from procurement functions of inputs and concentrate on advisory roles in terms of agronomic farm practices and appropriate farm input sources, processing and marketing opportunities along the commodity value chains.
- ❖ A private stockist distribution system should be created and supported over sometime. Farmers can then be subsidized through issuance of vouchers or any other means to ensure availability quality seeds, stocks and planting materials that does not undermine the operation of the farm input distribution system in the areas. However NAADS may procure inputs for demonstration purposes.

4. Quality Assurance Services

- ❖ A Farm Input Quality Assurance Agency (FIQAA) should be created to ensure and enforce quality seeds, chemical, drugs as these have remained a big challenge affecting agricultural production and productivity. Seed multiplication centres should be established where possible at regional levels, otherwise district levels would be the most ideal.

5. Farm Machinery

- ❖ Farm machinery such as tractors, ox-plough should be reintroduced at co-operative, farmer groups or household levels as appropriate. Given the financial costs involved, a phased approach on a yearly basis focusing on a given region/district is recommended.

6. Water for production

- ❖ Irrigation systems should be established where they are absent and strengthened where they already exist`e.g. Mobuku and the same should be done to cattle corridor development. Irrigation equipment for smallholder farmers can be subsidized like other farm inputs.

7. Value addition

- ❖ On farm value addition, government should establish value addition facilities such as rice hullers, threshers, coffee pulpers and maize mills. This can be undertaken on public private partnership framework involving organized farmer groups

8. Pest and disease control

- ❖ To cater for emergencies, funds for pest and disease control should be ring-fenced and either kept with Ministry of Finance, Planning & Economic Development or MAAIF under a special account. This will enhance the response of the Ministry in case of an outbreak.

9. Financing agriculture

- ❖ Micro finance needs to be refocused to address the needs of smallholder farmers.

10. Research

Government has to take research to ensure availability of high yielding seeds, stocks and planting materials. It also recommended that government should establish gene and seed banks to ensure that Uganda does not lose her indigenous seeds and planting materials.

REFERENCES

1. *Bob Watson (2011): How to assist small holder famers.*
2. *Geoffrey okoboi (March 2010): Improved inputs use and productivity in Uganda's Maize sub-sector, Economic Policy Research Centre.*
3. *M.Fanadzo: Revitalization of smallholder irrigation schemes for poverty alleviation.*
4. *Morrison Rwakahamba.Challenges facing the Agriculture sector in Uganda: Farmers' perspective.*
5. *Morrison Rwakahamba (March 2012).Agriculture in Uganda: Current Status and Future*
6. *National Resistance Movement Manifesto 2006: Prosperity for All.*
7. *Republic of Uganda 2010: Development Strategy Investment Plan for Agriculture (DSIP 2010/11 – 2014/15)*
8. *Republic of Uganda 2011: Ministry of Agriculture, Animal Industry & Fisheries statistical Abstract.*
9. *Republic of Uganda: Ministry of Finance, Planning & Economic Development Background to the budget editions.*
10. *Republic of Uganda 2010: National Development Plan (NDP 2010/11 – 2014/15).*
11. *of Uganda 2012: National Land Policy*
12. *Republic of Uganda 2000: Plan for Modernization of Agriculture.*
13. *Republic of Uganda 2008/2009: Uganda Census of Agriculture volume iv: Crop Area and Productivity Report.*
14. *Rose Nabbumba & Godfrey Bahiigwa (May 2003); Agriculture Productivity Constraints in Uganda: Implications for investment.*
15. *Sarah Ssewanya, John Mary Matovu & Evarist Twimukye (2008). Building on Growth in Uganda.*
16. *Uganda Bureau of Statistics: Statistical Abstract editions.*
17. *Uganda Vision 2040 Draft.*