HOW PUBLIC POLICIES ENHANCE OR IMPEDE AGRIBUSINESS INNOVATION: A STUDY OF FISH, BANANA AND VEGETABLES VALUE CHAINS IN UGANDA

Commissioned by the Government of Denmark and

The World Bank Institute

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List of Cronyms

AFPEC	Association of Fresh Produce Exporting Companies
BMU	Beach Management Unit
DDA	Dairy Development Authority
DRC	Democratic Republic of Congo
FAUEX	Federation of Association of Ugandan Exporters
HORTEXA	Horticulture Exporters' Association
HPOU	Horticulture Promotion Organization of Uganda
ICT	Information and Communication Technology
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MAP	Marketing and Agro-Processing
MFI	Micro Finance Institution
MFPED	Ministry of Finance, Planning and Economic Development
MTTI	Ministry of Tourism, Trade and Industry
NAADS	National Agricultural Advisory Services
NaFRI	National Fisheries Research Institute
NARO	National Agricultural Research Organization
NARS	National Agricultural Research System
NBS	National Bureau of Standards
NGO	Non Government Organization
PEAP	Poverty Eradication Action Plan
PMA	Plan for Modernization of Agriculture
PPP	Public-Private Partnerships
UFPEA	Uganda Fish Processors and Exporters' Association

EXECUTIVE SUMMARY

Background and policy context

A study to understand how public policies enhance or impede agribusiness innovations in Africa was commissioned by the World Bank in partnership with DANIDA to generate evidence and relevance for a planned forum on "Developing Technology and Innovation in Africa: Focus on Agriculture and Food Industry". The study was conducted in six countries in the Sub-saharan Africa, namely; Uganda, Kenya, Tanzania, Rwanda, Ghana and Mozambique; each county focusing on three commodity value chains. This report describes the findings of the Uganda study which targeted value chains for banana, fish and vegetables.

Uganda has experienced a dynamic policy environment largely influenced by structural adjustment policies initiated in the early 1990s aimed at induce higher participation of the private sector in the economy. More recently, since 2000, a poverty emphasis has been imposed leading to development of the Poverty Eradication Action Plan (PEAP) and its subsidiaries such as the Plan for Modernization of Agriculture (PMA). Agriculture is very important in the poverty agenda because the largest proportion of the poor is smallholder farmers. The key policies that have changed the context of agriculture and agri-business in general include:

- Liberalization of trade and privatization of service delivery where Government withdrew from commercial activities and also put in place a no subsidy policy for agricultural inputs.
- Structural reforms aimed at improving the poor state of the infrastructure, especially the power sector and the transport network.
- Civil service reforms aimed at reducing the civil service workforce and increase efficiency of the public sector.
- Decentralization – devolving power to district and sub-county to increase responsiveness and relevance of public services to people's needs.
- Land policies to increase livelihood security through access to land for more intensive use, delivering land-use services and protecting fragile environments.
- Agricultural policies e.g. National Agricultural Research (NARS) policy, National Agricultural Advisory Services (NAADS), and specific policies to dairy, beef and fisheries sub-sectors.

Methodology

The study was of a scoping type involving relatively few respondents but exploring issues at depth until saturation. Both individual and focus group interviews were used. A total of 28 interviews were conducted in categories of producers (6), traders/transporters (10), processors and exporters (5), NGOs and service providers (5), policy makers (2). The study was largely qualitative in nature and applied a thematic analysis to data collected.

Innovations in the value chains

Innovations were characteristic to value chains. In the fish value chain, innovations were identified in the following areas:

- *Co-management of the fisheries resources* through creation of Beach Management Units (BMUs), which initially started as a volunteer group responding to a crisis of fish poisoning. BMUs have now been institutionalized and empowered to manage a wide range of fishing related activities.

- *Quality assurance among fish processors* through the Uganda Fish Processors and Exporters' Association (UFPEA) which constituted an independent technical committee to ensure adherence to established standards.

- *Primary processing for the local supermarket and hotel industry.* Making of fish fillets of different forms to meet the specified market requirements in the supermarkets and hotels. The factory by-products such as fat is further processed locally into cooking oil.

- *Reducing post-harvest loses* among fish farmers by keeping harvested fish live in small pond where customers purchase it live. In addition, fish farmers were selling water drained from their ponds as liquid fertilizer.

In the banana value chain, innovations were in the areas of:

- *Farmer organization* to reduce over-exploitation by traders. The farmer organizations set minimum prices for banana and coordinate its marketing at the farm level.

- *New products and new markets.* New products such as banana chips are increasingly becoming popular in urban areas. Crafts from banana have also found new markets in the tourism industry.

- *Shortening the brewing process.* A new procedure of brewing alcohol from banana has substantially shortened the brewing process while and at the same time increased the yield of alcohol.

Innovations in the vegetable value chain included:

- *Charcoal cooler to improve for cold-room*. Due to lack of electricity in the rural areas, maintaining the cold chain is a big challenge. A charcoal cooler (using water and charcoal) is an excellent innovation that improvises for an electricity powered cold-room.

- *New packaging for the local market*. A 'basket' packaging which puts an assortment of vegetables in one basket is found convenient for the affluent supermarket shoppers. This is one way of expanding the local markets and reducing on the risks of the unpredictable export market.

- *Producer organizations* to enhance service delivery to small holder farmers and collective action to overcome stringent market conditions such as those in Europe Gap.

- *Processing to reduce post-harvest loses.* This is in the areas of processing chili sauce and extracting oil from chili seed.

The drivers of innovations outlined above relate to profit orientation and personal inspirations of entrepreneurs; the threats in business where competition is one; new market opportunities and access to information and exposure.

Policy influence on agribusiness

Policy influences are of two types, those that constrain and those that enhance agribusiness. On one hand, policies perceived to constrain agribusiness relate to:

- *Infrastructure*. These include facilities for hygienic fish handling at the landing sites, cold chain facilities for both fish and vegetables, poor road network and quality testing laboratory services.

- *Lack of favourable credit facilities and no subsidy policy*. This limits investment in agribusiness as the interest rate from commercial banks is prohibitive. Uncertainties in production and markets further exacerbate the risks.

- *Lack of government support in value addition of local products.* Although government expresses commitment to value addition, it is yet to be seen in action. In many cases, investment required in value addition is beyond the capacity of entrepreneurs giving way for imported products as a cheaper alternative.

- *Stringent and ever changing international market demands*. Conditions of the export markets such as the Europe Gap are becoming more difficult for the poor resource small

holder farmers to cope. They demand a lot of investment by all actors in the value chain including the government regulatory services.

- *Weak enforcement of existing laws and regulations*. This severely affects the quality of products which in turn hinder competitiveness especially on the international export markets.
- *High freight costs* increase the operational costs and reduces competitiveness of Ugandan entrepreneurs.
- *Open access to the lake resource*. This is particularly harmful to the fish value chain as the open access makes it difficult to control fishing activities that guarantee fish quality.

On the other hand, policies perceived to enhance agribusiness include: non-taxation of agricultural exports, liberalization of trade and service delivery enabling pluralistic service providers, and the burning of illegal fishing gears to protect juvenile fish.

Coordination and organizational interfaces for innovation

Innovation is associated with coordinated organizational interactions. Emergence of interest-based organizations is an innovation is considered an innovation itself but there is still weak interaction between organizations to enhance their innovative capacity. There is some evidence of learning resulting from interaction between organizations but more can be achieved if for example agribusiness firms interact with knowledge and technology generation institutions namely universities/colleges and research institutions. For this to happen, both sides need to be proactive in establishing linkages based on clearly defined common interest. Agribusiness firms are yet to demonstrate that they are using their networks in and outside the country for learning purposes. There is a capacity issue here (competence and access) for the agribusiness firms to utilize the electronic platforms such as internet for learning and innovation but this also comes at a cost which many of the constrained firms may not be able to sustain.

Learning is facilitated by umbrella organizations which solicit for technical support and provides training and other support services to their members. The bigger challenge is opening up to allow knowledge exchange amongst competing organizations. At the moment, competition is a barrier knowledge exchange.

Conclusions

Based on the findings of this study, the following conclusions are made:

1. Public policies constrain agribusiness innovations but these constraints are not necessarily due to lack of supportive policies but rather the lack of or inadequate implementation of policies.
2. Agribusiness innovations in the value chain are stimulated and sustained by market guarantee which in turn is enhanced by value addition. Processing is essential in stimulating agribusiness innovation but this has to be supported and nurtured by government.
3. Innovation requires a high degree of organization. Association of interest groups is itself an innovation that creates the support systems for further innovation within its members.
4. Markets and market conditions drive innovation in a value chain if they are challenging enough but achievable. However if the conditions are overwhelmingly defeating, they impede innovation. This is where the government role becomes extremely crucial.
5. Knowledge is the key to agribusiness innovation, but knowledge is more than just accessing information. Knowledge is association with interaction between organizations. Platforms for such interaction are essential to facilitate knowledge exchange.
6. Knowledge is increasingly becoming a global public good but agribusiness firms need to gain capacity to utilize global knowledge in the public domain using facilities such as internet.
7. There is a challenge in creating national agribusiness innovation systems as the technology/knowledge generation institutions and/or training institutions are apparently disconnected from the value chains.

1.0 INTRODUCTION

1.1 Background to the study

In Sub-Saharan Africa, the role of innovation and technology development has increased significantly over the past decades. This transformation can be seen not only in the exponential growth of mobile phones, the growing use of computers and consumer electronic goods, and the rise of certain countries such as South Africa that have mainstreamed numerous technology applications into the private and public sectors. Many countries which rely on subsistence farming for example Rwanda are investing in improved agricultural techniques, developing centers of science and technology, and attempting to move up the value chain in terms of the quality and certification of such products as coffee and tea; in Uganda where technology is having a high impact in aquaculture and organic farming; and in Kenya where technology is shared within enterprise clusters that produce cut flowers, auto parts, handicrafts, and other industrial products.

Taken as a whole, these examples demonstrate the increasing vitality of technology and innovation in Africa. However, there are many examples where technology investments in Africa have not been successful. Poor infrastructure and inadequate infrastructure services, lack of human skills and institutions to support the use of technology are important factors in explaining the relative slow progress in many African countries.

In this context The Danish Government represented by DANIDA and the Danish Ministry of Science, Technology and Innovation has partnered with the World Bank Institute to organize a Forum on "Developing Technology and Innovation in Africa: Focus on Agriculture and Food Industry". In order for the Forum to have a clear relevance and concrete follow-up activities, it has been decided to limit the number of invited countries to Ghana, Kenya, Mozambique, Tanzania, Uganda and Rwanda and to focus on the following technology sectors: agriculture, food industry, rural energy and physical environment including water.

It is in this perspective that a study was commissioned by the World Bank and DANIDA with the purpose of understanding how public policies encourage or impede agribusiness in Africa. Six countries namely; Uganda, Kenya, Tanzania, Rwanda, Ghana and Mozambique were involved in the study each of them focusing on three commodity value chains. Uganda focused on value chains for banana, fish and vegetables. The choices of commodity chains was largely influenced by the perceived level of innovations taking place in related agribusiness though there were attempts to avoid duplication in the countries.

Banana is a very important food and cash crop in Uganda with multiple uses and products. It is widely grown in different parts of the country but recent outbreak of the banana wilt disease has devastated production in some regions. Currently, the main banana producing region is South-

Western Uganda where like many other crops banana is largely produced by small holder farmers. Different varieties of banana are grown, some for food, and others specifically for brewing. As a food, there are two main categories. The first category is the cooking type and the other is the dessert (apple banana). There are also other types of bananas (plantains) which are consumed roasted/baked. The cooking and desert bananas are sold in almost all markets in Uganda, while the brewing type tends to be concentrated in specific locations.

The fish industry is one of the fastest growing in the non-traditional export sector. Fish export is the highest single non-traditional foreign exchange earner amounting to over $ 140 million annually in Uganda. Several fish processing factories have proliferated since the 1990s and currently the Uganda Fish Processors and Exporters Association (UFPEA) has a membership of 17 firms. Most of the fish exports are destined for European market though regional trade for fish products is also growing in the neighboring countries. Lakes are the main sources of fish especially for export but fish farming is also expanding targeting the growing local markets.

A variety of vegetables is produced in Uganda the vegetables targeted in this study are those that are primarily grown for export. These are produced by small-holder farmers on contract with the exporting companies. Specifically, the vegetables of interest in this study include hot pepper, okra and green paper. In many cases, these are produced in combination but hot pepper is becoming the most preferred because of it market in Europe.

1.2 Agriculture in a policy context

Uganda has experienced a dynamic policy environment since the mid-1980s. Like all other sectors, agriculture has been influenced by the broad economic and structural adjustment policies aimed at providing conducive environment for participation of the private sector in the economy. The structural adjustment policies such as decentralization, privatization and liberalization initiated in the early 1990s changed the context of agriculture and agribusiness in general. Later, a poverty eradication focus was superimposed onto the policy and development agenda. The poverty focused development frameworks namely the Poverty Eradication Action Plan (PEAP) and its subsidiary plans such as the Plan for Modernization of Agriculture (PMA) have put another spin to policy dynamics. PMA (developed in 2000) is the major pillar in the poverty eradication strategy as over 80% of the population depends on agriculture with the largest proportion of the poor being smallholder farmers. Broadly, policies that have a bearing on agriculture in general and agribusiness in particular are outlined.

1.2.1 Macro-Economic stability policies

Implementation of fiscal, monetary and exchange rate policies were intended to restore investor confidence resulting in financial stability, balance of payments viability and steady growth with low and stable inflation. The economy being heavily reliant on agriculture, it was envisaged that

substantial private investment would be made in the areas of agricultural production and export. Emphasis is placed on value addition and broadening the range of exportable products. Indeed non-traditional agricultural exports such as horticulture and fish could be attributed to such conditions.

Macro-economic stability, especially low inflation is desirable for agribusiness as it allows long-term and medium-term planning with some degree of predictability. It also encourages savings by guaranteeing minimal devaluation of one's savings which in turn can be re-invested.

1.2.2 Liberalization of trade and privatization of service delivery

Governments' macroeconomic strategy is to maintain liberalized markets for domestic and external trade, and an open and transparent regulatory and policy framework for the private sector. It is argued that open trade policies promote a pattern of economic growth which will clearly benefit the poor, because these policies shift incentives towards the sector in which the poor earn their living (agriculture in this case), raising returns to factors of production owned by the poor and generating employment. The overall intention is to increase private sector participation in economic development including agricultural sector. As a result, Government withdrew from commercial activities which were perceived to be better done by the private sector. In this line, marketing of agricultural produces and supply of agricultural input was liberalized and privatized. This also marked the death farmer cooperative unions and parastatal marketing boards such as coffee marketing boards, cotton marketing boards. Similarly the cooperative bank that used to provide agricultural finance at favorable terms collapsed for both political and management reasons.

In the principle of complete privatization, the no subsidy policy to agricultural inputs was put in place. This implied that input supply was subject to free market forces of supply and demand resulting into inputs being more expensive than before. Many private input suppliers came into the market while the quality assurance systems got weaker.

1.2.3 Structural reforms

In order to increase effectiveness and efficiency, government implemented critical structural reforms which were also aimed at accelerating growth of the private sector and to raise productivity and out, especially in small holder agriculture. It is also recognized that a major constraint facing the private sector is the poor state of the infrastructure, especially in the power sector and the transport network. Through this the electricity sector has been privatized with the hope that extension of electricity to the rural communities will be induced by a profit motive. This in turn would attract agro-processing in the rural communities. Road rehabilitation and expansion is another area that government targeted to improve.

1.2.4 Civil service reforms

Government has been implementing the Civil Service Reform aimed at restructuring and reorganizing government ministries and agencies and national reduction of civil service work forces. This measure had the dual objective of strengthening the public sector by producing an effective, efficient and well remunerated and motivated civil service and also increasing efficiency in public sector resource allocation while reducing the direct role of Government in production and commercial activities. Government Ministries were merged and some departments restructured or abolished altogether. As a consequence, the civil service reforms considerably reduced the staffing levels in MAAIF and the technical departments at the districts as a many staff were retrenched and a barn was slapped on recruitment. These reforms continue today thereby affecting service delivery in nearly all public institutions. With respect to organizational structural reforms, the ministry has been trimmed by creation of semi-autonomous organizations such as the National Agricultural Research Organization (NARO), the National Agricultural Advisory Services (NAADS), and Dairy Development Authority (DDA). The main role of MAAIF then became policy guidance and national planning.

1.2.5 Decentralization

Decentralization was launched in 1992 and enshrined in the 1995 constitution, leading to the enactment of the Local Governments Act of 1997. The decentralization process involved substantial transfers of political, financial and planning responsibilities from the Central Government to Local Councils. This empowers the Local Governments (districts, sub-counties and urban authorities) to take increasing responsibility for the delivery of services. The assumption here is that local authorities are better placed to respond to the needs of local communities who can, in turn, easily hold them accountable. Actual implementation and delivery of agricultural services will be left to the local governments. Decentralization for example, transferred the responsibility for extension service delivery from the MAAIF to the district local governments – meaning that priority setting, program planning and implementation were now a responsibility of the districts.

1.2.6 Policies on food security, food and nutrition standards

Currently, there is no comprehensive policy on food security and the food safety and nutrition policy is still under formulation. It is thought that the food security policy would address issues including (a) irrigation; (b) publicly held grain reserves; and (c) compulsory retention of reserve of designated food crops by farmers. If these were in place, they would perhaps provide new patterns of innovation in agribusiness. In the context of smallholder production in a rain-fed agricultural system as is the case in Uganda, irrigation is expensive and, where installed, is best used to facilitate increased and more reliable production of high value crops on a continuous basis. While these may not add to food security directly, they do so indirectly by providing cash

resources to purchase foodstuffs. The PMA addresses itself to flexible, low-cost water harvesting technologies that suit subsistence farmer needs rather than large irrigation infrastructures. Through such the food security policy, government would encourage private sector to improve markets so as to increase incentives for farmers and traders to engage in inter-temporal crop storage – eventually increasing food exports into regional markets like the upcoming East African Common Market.

There have also been ideas about establishing private sector insurance schemes for the agricultural sector to respond to the risks in agricultural production and agribusiness such as adverse impact of droughts and diseases on farm incomes. Such a policy issue is necessary to provide a basis for dialogue and attracting insurance industry interests into the agricultural sector.

1.2.7 Land policies

There has not been a formal land use policy – a newly formulated land use policy has just been launched (end of March 2008) while the land policy is currently under review by parliament. Among other things, the land policy is expected to provide livelihood security through employment or access to land for more intensive use, facilitate appropriate development, delivering land-use services and protecting fragile environments, and redress historical injustices and provide more equitable access to land.

1.2.8 Agricultural policies

Several agriculture specific policies exist and the key ones include:

- Agricultural Research – a new National Agricultural Research (NARS) policy was put in place in 2003 as part of the process of realigning agricultural research into the PMA. Among others, the key principles of the NARS policy include: responding to market opportunities; empowering stakeholders; decentralization of agricultural research services; promoting participation of private sector, civil society and farmers; and quality assurance of agricultural research services.
- Agricultural Advisory Services – the National Agricultural Advisory Services (NAADS) is in place as one of the pillars of the PMA. It is designed on the philosophy of decentralized, farmer owned and private sector delivery.
- Farm Power and Agricultural Mechanization – under the PMA, government would promote adoption and use of intermediate technology; namely, animal traction particularly under smallholder agriculture, where appropriate; as motorized farm power remain purely private sector activity based on individual farmer needs.
- Dairy Sub-sector – Government has liberalized the dairy sub-sector. The Dairy development Authority (DDA) is in place to champion this sub-sector with guidance of a Dairy Master Plan.

- Beef Sub-sector - Government policies for the beef sub-sector are contained in the Beef Master Plan. The Plan provides the framework for increased production of meat for both domestic and export markets mainly through increased private sector investments. Of critical importance is the government's role in providing the necessary legal and regulatory frameworks as well as standards for meat quality and hygiene.
- Fisheries Sub-sector – In the context of PMA, the fisheries sub-sector is of strategic importance not only as a means of increasing household incomes and nutrition but also as an export commodity. In recent past, it has been one of the fastest growing non-traditional exports and foreign exchange earners.

The PMA is the comprehensive and multi-sectoral framework for agricultural development targeting poverty eradication through commercialization of agriculture. This kind of vision would be expected to stimulate a business orientation to agriculture, hence enhancing agri-business. It has seven priority areas for public action namely:

1. Promoting agricultural research and technology development
2. Improving access to and quality of, agricultural advisory services
3. Promoting agricultural skills and knowledge through formal and informal education
4. Improving access to and availability of, rural finance
5. Promoting agro-processing and improving access to markets
6. Promoting the sustainable use and management of natural resources
7. Improving supportive physical infrastructure – such as roads, electricity, water and communication

These priority areas if implemented as articulated in the documents present all facets necessary for a fast growing agri-business sector. The challenge however is in implementation and coordination of the various interventions which are scattered in various ministries and departments. Given the inter-dependent nature of the priorities, the greater challenge is adequate funding for holistic implementation of the PMA. Without a holistic implementation, the anticipated benefits and impacts will hardly be achieved.

1.3 Approach to the study

This study was of a qualitative nature targeting different actors in the value chains of fish banana and vegetables. The intention was to obtain the views of the actors as perceived and interpreted in their own context. Emphasis was placed on the value chain in its entirety as opposed to independent and disconnected actors. Open ended interviews were therefore conducted with a wide range of actors in the value chains including those engaged in production, trade (buying and selling), transportation, processing and export. The checklist that guided the interviews is attached as Annex I. Because of the varied nature of activities across the value chain, not all

questions (in the checklist) were applicable to all levels of actors – only relevant ones were applied.

The study was of a scoping type involving relatively few respondents and rather limited in coverage. Issues of exploration were of thematic nature grounded in context. In this respect, both individual and focus group interviews were used. Emphasis was placed on exploring depth of perceptions of policy related aspects in relation to the activities of actors at various levels of the chain. In this view, the numbers were not of so great importance though it is recognized that number of respondents would probably broaden the issues. Within the limitation of time and resources, exploring as much as possible in the interview (saturating the respondent) was a guiding principle. The respondents were purposively selected based on information available to the consultant and in consideration of accessibility and availability.

The table below identifies the numbers of interviews conducted in respective categories within the value chains. It is however worth noting that these categories are not exclusive, for example some of the traders in fish also did some primary processing and some of the producers of vegetables were also exporters. Annex II presents the detailed information about the respondents.

Enterprise	**Producers**	**Traders/ Transporters**	**Processors and exporters**	**NGOs and service providers**	**Policy guidance or ministries**	**Total**
Fish	2	6	1	3	-	12
Banana	3	4	-	-	1	8
Vegetables	1	-	4	2	1	8
Total	6	10	5	5	2	28

Data was collected in form of notes taken in notebooks. In most cases, two researchers attended a single interview for purposes of completeness in capturing the views of the respondents as well as the interview itself. The data were later synthesized and analyzed using a thematic approach as presented in the findings. Respondents from the ministries served to cross-check and validate the opinions of value chain actors but also to complement them. The findings presented therefore include opinions of those responsible for policy guidance and implementation.

2.0 INNOVATIONS IN VALUE CHAINS

2.1 Innovations in the fish value chain

The actors in the fish value chain are many and interconnected into a complex web of actors. For purposes of analysis, a simplified value chain ordinarily involves the following actor categories: fishermen and input suppliers; management and regulatory agencies; fish traders and transporters; factory processors for export to premium markets and processors for the local and regional markets. The diagram below illustrates a rather simplified linear structural connection of the actors

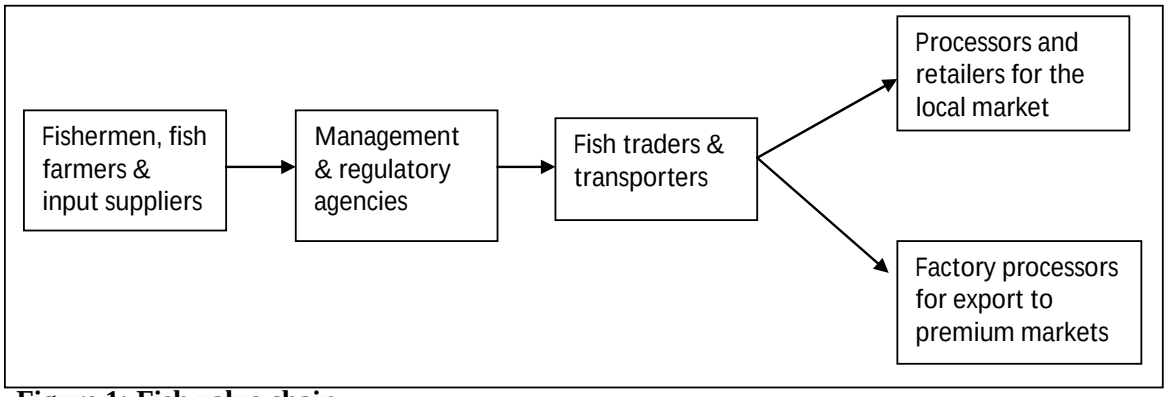

Figure 1: Fish value chain

The fishermen and input supplier category involves: fish mongers, boat owners/makers, and suppliers of fishing nets and other fishing gears. These operate largely at the primary production level. The management and regulatory agencies include the Beach Management Unit (BMU) and the fisheries department. Some traders and transporters are of two kinds; those who supply factories for export to premium markets (Europe) and those who supply/process for the local and regional markets. Some traders are also processors of some kind and exporters as well.

Like any other food chain, the final product to a large extent is influenced by the first level of handling. In this regard, the international market policies and conditions demand changes in management and handling of fish in the entire value chain with emphasis on quality and safety of the product. Some are consumer initiated, stringent and dynamic requiring regular sensitization, monitoring and control.

Most of the so-called innovations in the fish value chain is more of compliance to policies and demands of the European markets. Some relate to technology adaptation and transferability to a modernizing local market in the urban areas. The notable innovations include:

2.1.1 Co-management of the fisheries resources

At the production level, the Beach Management Unit (BMU) was originally a community driven effort to enhance monitoring and surveillance of fishing activities. This was in response to incidences of fish poisoning which led to suspension of fish export to foreign markets and severe reduction in local consumption of fish. This posed a threat to the sole source of livelihood to the fishing community and the fish sector in general, but government system was ill-equipped to monitor and control illegal fishing practices. The fishing community mobilized and formed volunteer committees to supplement government efforts in enforcing regulations governing fishing activities. These committees have since 2003 evolved into BMUs which are now recognized by government and have taken over most of the regulatory activities on the lake and landing sites. Bye-laws have been developed and BMUs are among other things empowered to:

- Ensure that illegal fishing methods and gears are not used
- Ensure proper sanitation and enforce minimum standards by fishermen and traders at the landing sites
- Coordinate the various stakeholders that operate on the lake and at landing sites
- Collect revenue and issue movement permits and license to fish traders/transporters on behalf of government
- Collect data and keep records related to fishing activities

To coordinate activities at that level, stakeholder-based association have emerged for collective action in advancing their specific interests and aspirations. Indeed, BMU is a 14 member volunteer committee with representation of fish mongers, fish processors, fish crew, boat owners, boat makers, engine and net suppliers, and district fisheries department. A total of 355 BMUs are found on Lake Victoria alone. BMUs generate revenue from licensing traders, issuing movement permits, fines, user fees, and each fishing boat contributes one fish to BMU at landing. BMU retain 10% of the total revenue to facilitate their activities. Though recognized by government, BMUs are not employees of government. At a higher level, the Uganda Fish Processors and Exporters Association (UFPEA) has put into place a mechanism to curb juvenile fish processing amongst its members as part of a comprehensive quality assurance system.

2.1.2 Quality assurance among fish processors and exporters

To ensure competitiveness of Uganda fish exports, UFPEA, an umbrella association for fish processor and exporters (comprising of 17 member companies) has constituted an independent technical committee to ensure adherence to minimum standards at the fish factory level. All members have signed up and contributed funds to facilitate the activities of the committee. The committee has unlimited access to all factories and imposes punitive measures on members who do not comply to agreed standards. For example, a first time of non-compliance attracts one week suspension; second time of non-compliance attracts one month suspension and third time attracts three months suspension. The punitive measures are effected through recommendation to the commissioner for Fisheries in the Ministry of Agriculture, Animal Industry and Fisheries

(MAAIF). UFPEA also mobilizes resources and technical services to train quality managers of its member companies.

2.1.3 Primary processing for the local supermarket and hotel industry

The emergence and growth of supermarkets and hotels has resulted into local niche markets with specific customer preferences requiring some primary processing. The supermarkets and hotels prefer fish fillets sometimes with different specifications. For example, the Asian restaurants prefer fish fillet with skin while other hotels and supermarkets prefer fish fillets without skin. Fish fillet processing is a practice learnt from the fish processing factories and now fillets are made at the landing sites ready for the supermarkets and restaurants. This type of value addition at the source of production is an example of adaptation of a technology to different situations.

The bulk factory processing of the Nile Perch leaves behind a large amount of by-products such as fat and skeletons. These factory by-products are processed and sold locally. The skeletons are smoked and sold mainly to Democratic Republic of Congo (DRC) but more interesting is that the fat is processed into cooking oil and sold to the local community. This is a case where the community utilizes the by-products of a factory to produce a different product which in turn illustrates the potential for integration of fish processing leading to multiple products.

2.1.4 Reducing post-harvest losses at the farm while ensuring customer satisfaction

Fish is a very perishable commodity and poses a risk of high post-harvest losses especially to the fish farmers who do not have facilities for preservation. Because of the limited scale, fish farmers target supplying the neighboring communities and rely on farm-gate marketing. A fish farmer came up with the idea of keeping harvested fish live in a small and shallow pond at his home. The buyers make choice of the fish they want when it is still alive. With this innovation, the farmer can harvest his pond once and be able to sell his harvest without any losses while at the same time satisfying his clients who are happy to purchase live fish. It also helps to overcome the challenge of preservation and bringing a new standard of marketing live fish to customers.

2.1.5 Alternative use of fish farming residues

The same farmer is not only earning money from the fish but also from the waste water from his ponds. It is known that fish ponds accumulate nutrients from the fish feeds. Some of the nutrients are soluble – implying that the pond water is rich in nutrients. After harvest, the farmer drains the ponds and sells the drained water to other farmers especially organic farmers whose use it as a fertilizer. This is how new market opportunities lead to creativity and utilization of knowledge for new purpose.

2.2 Innovations in the banana value chain

Banana is widely grown in Uganda both as a food and cash crop. However, the banana wilt disease has severely affected banana production in some parts of Uganda. The main banana producing areas now is the Western and South-Western Uganda though under threat. The disease is partly spread by movement of infected materials, which calls for enforcement of restricted movement of plant materials. Banana is largely produced by small-holder farmers. Different varieties are grown; some for brewing, some for dessert (apple banana) and others for cooking (matooke). While most of the banana is eaten as matooke, several other products are processed from the banana crop including crafts made from banana stems and leaves. The other common products from banana are wine/spirit, juice and banana chips. Figure 2 is a simplified illustration of the banana value chain as traced in this study.

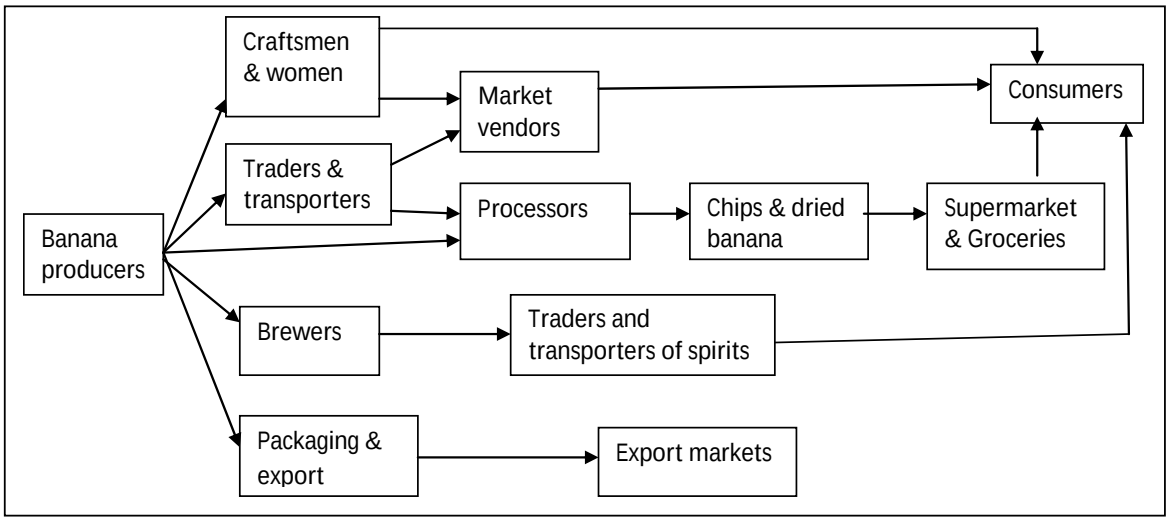

Figure 2: Banana value chain

From farmers, most of the banana goes to the market directly. Value addition in banana fruit is only by processing chips or brewing crude spirit also known as waragi. Export to overseas markets is limited by the bulkiness of the product, hence the lack of technology for primary processing. A typical banana value chain is a short one which in turn limits the range of innovations that take place. The innovations found in the banana value chain relate to organization of farmers to increase their bargaining power with traders, shortening the brewing process, and making chips from banana.

2.2.1 Farmer organization to reduce over-exploitation by the traders

For a long time farmers have been vulnerable to exploitation by traders who often took advantage of their poverty situation and lack of market information to purchase produce at very low prices. To minimize exploitation and gain collective bargain for their produce, farmers have locally organized to set minimum prices. This makes it difficult for the traders to exploit

individual farmers. This new type of arrangement has strengthened the role of brokers. The brokers link traders with the source of banana with a guaranteed price for the banana produce. It is through such organizations that farmers begin to interact with the market and exchange knowledge that can lead to new innovations.

2.2.2 New products and markets

Processing banana into chips is a relatively new product whose popularity is increasing in the urban dwellers. Most supermarkets and groceries in Kampala for example have banana chips on their shelves. This is an innovation to meet interests of new lifestyles of feeding behaviors. It is easier to pack banana chips as a snack for children and adults than ripe apple banana. The processing and packaging adds value and increases the shelf-life of banana. Dried banana chips are also exported.

Related to this are new markets for crafts made from banana. Making crafts from banana stem/leaves is not new but the quality of such products has tremendously increased attracting export markets in the region and overseas. Most of these crafts are made by rural and urban women who supply to whole salers/exporters. The crafts makers organize their auction market once a week.

2.2.3 Shortening the brewing process

Traditional way of brewing waragi from banana involved: 1) ripening banana, 2) squeezing the juice, 3) adding yeast juice and fermenting it, and 4) distilling the spirit (waragi). Steps 2&3 are now combined. Ripe bananas are crushed and mixed with water and fermented before the brew is sieved and distilled. The new process is shorter, yields more alcohol, and is less costly in terms of labor and additives. It is estimated that the yield of alcohol is almost double in the new process compared to the old one. As shown in Figure 2, the crude waragi is not processed any further and is consumed in the form it is produced. This is rather retrogression as in the past; the crude waragi was further purified and bottled as “Uganda Waragi”. The Uganda waragi is no longer processed from crude waragi but from imported consumable spirits from sugarcane because it is very expensive to purify the crude banana spirit.

2.3 Innovations in the vegetable value chain

The vegetables of interest in this study were the high value type targeted for export market. A variety of vegetable are grown on small scale by companies and outgrower farmers, hot pepper being one of the most common vegetable. Outgrower farmers produce for specific export companies on a contractual arrangement. The firms also provide a variety of services to the outgrowers including credit which is recovered on selling the produce and advisory services to ensure quality production and handling. Stringent conditions imposed by Europe Gap – now Global Gap have considerably reduced the number of farmers who can fulfill the requirements to

produce for export. The regulations assume an elite and resource endowed farmers with professional management. It also implies that the export companies have to employ more professionals to provide quality services and advice – hence more recurrent expenditures.

Included in the these regulations are the components of traceability 1978/2002; food and feeds regulations 882/2004; and the pack house/hygiene package 854/2004.These regulations require farmers to keep proper management record regarding all farm operations/activities for traceability as well as have prescribed facilities. Many export companies face the challenge of raising adequate export volumes as most farmers cannot meet these conditions hence are not certified. Because of the strict regulations, the value chain for vegetables is a very short one. From the farmers, vegetables for export are handled by the export companies or supplied directly to the supermarket for the local market.

In the context of the global trade policies, much of the so called innovations are simply compliance with the market conditions i.e. putting in place facilities and for compliance. Some of the innovations identified in the vegetable business relate to improvising for cold-room and new packaging for the local market.

2.3.1 Charcoal cooler to improvise for cold-room

Of the major challenges in vegetable export business is maintenance of a cold chain. The vegetables are produced by farmers in remote areas where there is no electricity and providing cold chain facilities is a big challenge. One of the vegetable producers invested in construction of a charcoal cooler which uses charcoal and water as the cooling system (picture besides). This enables getting the vegetables into the cold chain as early as possible and therefore enables sorting and packaging to be done at the farm from where the produce is transported directly to the airport. Other than the benefits to the exporter, it also provides employment to the rural communities. The technology (innovation) is not cheap, it involves substantial investment but it would considerably cut down expenses of an exporter if adequate volumes were raised. The reduction in number of farmers who can produce for export has however curtailed effective use of the facility as he cannot regularly raise adequate volumes for export.

2.3.2 New packaging for the local market

The new and ever changing regulations are making export of vegetables especially to the European markets more difficult. This has made many exporters explore the local market but with a new quality attractive to the elite community in and around urban areas. One firm innovatively packages an assortment of vegetables in one basket to make it easy for the supermarket shoppers. The customer preference for this type of packaging is said to be overwhelming that the firm cannot meet the demand from the supermarket. The challenge then lies in the consistence of supply and maintenance of quality. Discussion between the firm and

one of the supermarkets resulted into an experiment where the supermarket hired out space to the firm to sell their vegetables. The firm then employed a salesperson for their vegetable stall to guarantee quality and also obtain direct feedback from the customers. The arrangement has worked very well for both the supermarket and the vegetable firm. The supermarket gains through customer satisfaction and rent while the vegetable firm has a guaranteed outlet channel for their products and direct contact with its consumers. This arrangement has extended to several other supermarkets and it is realized that there is very high potential for the local market.

2.3.3 Producer organization into cooperatives

The stringent market conditions make it difficult for individual small holder farmers to survive independently. A realization for collective action is apparent and farmers come together into cooperatives to carry joint production and marketing activities. Some of the producer organizations are registered as legal entities driven by the need to share facilities, and cost-share for some services. Within a cooperative arrangement, internal mechanisms for adherence to established standards is put in place and enforced. This makes it possible to certify the cooperative as an entity rather than individual farmers. Through their cooperatives, farmers are also able to collectively bargain for better prices, or some equipment and services. An example is explained in the box below.

Box 1: Benefits of farmer cooperative

At their own initiative, a group of six hot pepper growers in Binzi village, Mpenja sub-county in Mpigi district formed a cooperative and registered it as a legal entity. As a cooperative, the farmer negotiated a contract to supply hot pepper with an exporter. To meet their contract with the exporter, the farmers synchronize their planting and other farm operations in order to raise volumes and bulk produce required by their client. Farmers explained the benefits of cooperative to include the following:

- Sharing information and experiences in various practices and learning more about pests and diseases and how to manage them within the guidelines of Europe Gap. As a group, they also secure training sponsored by their client.
- Jointly procure inputs e.g. pesticides, share facilities/equipment e.g. chemical store and sprayer, and hire someone to spray all their plots in one day. The person who sprays comes with his own protective gear and farmers only pay a fee for his services. This ensures a single spraying regime and thus enables farmers to pick their pepper on the same day.
- In case their client is not able to take their produce for some reason, farmers are informed in advance and under these circumstances find another buyer for their produce. This is possible because the buyer is assured of quality and a reasonable volume of the produce. Similarly, farmers are able to facilitate a technical person to come and offer them advisory services if they needed it.
- Have a mechanism to monitor and enforce adherence to standards. If a member deviates from those standards, sanctions are applied.

2.3.4 Processing to reduce post-harvest loses

There is a high level of post-harvest losses in hot pepper as the produce that does not meet the export market standards is all thrown away. One of the firms had started processing the “reject”

into chili sauce and extracting oil from seed but is currently finding difficulties as many farmers have dropped out because they could not meet the Europe Gap requirements. This would add value and expand the range of products from pepper thereby widening the market as well.

2.4 Drivers of innovation

Innovation is usually a reaction to forces and conditions that prevail in a particular environment – in this case the agribusiness environment. There are no universal triggers of innovation but based on the innovations in the three enterprises described above, drivers that trigger off innovations usually include; profit orientation and personal/organizational inspiration; threats in the business environment; new market opportunities; and access to information and exposure. These are briefly discussed in the context of the study.

2.4.1 Profit orientation and personal/organizational inspiration

The primary motive of any business is to make profits but the personal/organizational inspiration adds to the vigor with which a business pursues its profit motive. This is an intrinsic factor that drives strategies and hence creativity. First, is the belief in own potential and capabilities to succeed which generates the zeal and commitment to make things work and explore unorthodox ways of doing things.

Those companies and individuals who had a clear vision of what it is they wanted to achieve in their business beyond just survival, exhibited characteristics of dynamisms and creativity. At a company/organizational level, the vision needed to be a shared one – motivating every participant to find the best ways to do their job. Improvising is an indicator of the level of inspiration. In the vegetable enterprise for example, most of the producers were fairly elderly farmers as old as 70 years but were able to improvise a lot to satisfy the requirements to produce for export. Likewise most of the business actors in the chain are neither highly trained nor---but have the inspiration and belief in their potential.

Another example is of two men found at one of the landing sites on Lake Kyoga, who buy fish from the fishermen, dry the fish by salting and export it to Democratic Republic of Congo (DRC). To avoid problems of currency exchange, they barter the fish with textile (bitenge) which they then sell in Uganda. Clearly what keeps them going is their individual inspiration and profit maximization.

2.4.2 Threats in business

Threats in business put one's investment at risk creating tension which consequently stimulates innovation. A more familiar cause of threat is competition, new market conditions like the Europe Gap, an unfavorable policy, or failure to implement a beneficial policy are also sources of threat. A threat is a condition that puts investment or a livelihood at risk. Most of the innovations described in the fish enterprise for example are a response to the threat in the fish business. Initiatives for co-management of the lake resources and quality assurance measures within UFPEA are typical responses to a threat to the fish related business. Likewise,

improvising and uptake of new practices in the vegetable business are a response to Europe Gap regulations.

If the threat is of a broad nature like it was in the fish sub-sector, then it creates motivation for collective action and the resultant innovations are to offset a meta-challenge that requires joint action. This is however, no substitute for individual/organizational level threats but the inter-organizational interaction via fora like umbrella associations sets a platform for knowledge exchange providing alternative options. Emphasis is made here that for innovations to take place in agribusiness there must be a challenge that puts investment or livelihood at risk. The tension it creates is the precursor for innovation.

2.4.3 New market opportunities

New markets and/or opportunities within existing markets continue to emerge. Ability to identify and respond to these opportunities is what makes the difference between an innovator and non-innovator. This is very closely linked to demand which has two dimensions. There is demand that comes from the market i.e. new specifications or standards but demand is also pro-actively created by putting a new product on the market. Processing of fish fillets at the landing sides is an example of demand from the supermarkets and hotels whereas making banana chips is a typical demand pro-actively created by putting a new product on the market. The basket packaging of an assortment of vegetables is a new opportunity within an existing market to target the affluent community who wish to be associated with trendy preferences.

Responding to market generated demand is easier as what is needed is acquisition of the necessary knowledge, technologies and facilities but inducing demand requires much more. It calls for foresight, courage to experiment, establishing linkages/networks and persistence. A support system is essential here to enhance confidence and reduce the risks of the innovators as profit may not be realized in the short-term but in the long-term.

Even the undesirable conditions such as poverty can be an opportunity in agri-business. For example, processing of cooking oil from Nile Perch fats targets the poor communities which cannot afford vegetable oil, while waragi (crude spirit from banana) is a commodity for poor communities which cannot afford bottled alcohol. The important thing is to be able to identify opportunities even amongst challenges which in itself could be an “innovation”.

2.4.4 Access to information and exposure

Innovation is dependent on knowledge and knowledge is simply information in application. Without access to information, it is difficult to know what the market wants and in such a situation, the challenge for innovation will be minimal. It is for the reason of access to information that the mobile telephone for example has become an indispensable tool in agribusiness. Therefore, factors limiting use of ICT such as illiteracy, lack of electricity in rural areas directly limit access to information/knowledge and consequently hinder innovation.

Exposure is coming into direct contact with new experiences and thereby challenging one’s ways of doing things. It opens up one’s eyes to see the world differently in terms of potential and

opportunities. The innovation to process hot pepper is linked to exposure and access to information. In other words, access to information and exposure induce innovation.

3.0 POLICY INFLUENCE ON AGRIBUSINESS INNOVATION

Policy is the framework within which innovation takes place. The policy environment therefore could enhance or inhibit innovation in agribusiness. Perceptions on this issue were explored among the various stakeholders in the value chains investigated and clarified by the supportive NGOs as well as government representatives. Perceived policy related constraints are discussed first and later agribusiness supportive policies/factors are also discussed. Generic policies and conditions that support or constrain agribusiness as well as specific ones to value chains are discussed.

3.1 Perceived policy related constraints

Success of private-sector led agribusiness in both international and local markets also depends on existence of infrastructure and services of public nature that individual private firms cannot undertake. This calls for government investment into basic facilities and services that support the agribusiness including appropriate policies. It is not enough to have a good policy in place unless mechanisms for their effective implementation are also in place. What is described here is a set of conditions and policy related aspects constraining agribusiness with specific reference to fish, banana and vegetable value chains.

3.1.1 Infrastructure

The infrastructure referred to here is of public nature or facilities that support the agribusiness sector but would be too expensive for a private company to invest in. They include facilities for fish handling, sanitary and hygiene facilities at the landing sites; testing and quality control laboratory services; cold chain facilities and state of the road network.

- **Facilities for fish handling, sanitary and hygiene facilities at the landing sites**. This is specifically for the fish related business. Nearly all landing sites do not have the basic facilities for safe handling of fish thereby posing a high risk of contamination at the first point of handling. Sanitary and hygiene facilities such as toilets are for public use and largely a responsibility of the public sector. As a result, much as the fishing communities live around the largest sources of water (lakes), with the least access to safe water due to lack of sanitation and hygiene facilities. Such conditions pose a high risk of contamination of fish at source thereby affecting its quality in the rest of the chain.
- **Cold chain facilities**. Fish and vegetables require maintenance of cold chain right from harvest to export. Government for example needs to invest in cold houses at the landing sites where traders can temporarily keep their fish at a fee before supplying it to factories instead of keeping several insulated and iced trucks at the landing sites for several days. This would considerably reduce on the cost of doing business at that level while ensuring quality of fish. Similarly another line of cold chain for vegetables would be necessary as the facilities for fish are unsuitable for vegetables.
- **Road network**. Because of the lack of electricity in the remote areas where production takes place and for purposed of proximity to the airport, the processing and packing

facilities are conveniently located around Kampala or Entebbe. This implies transportation products for long distances by road to where they are processed or packaged. In addition to the high cost of transportation, the poor state of road network causes losses due unwarranted delays of delivery of the products particularly the highly perishable ones like fish. Taking fish as an example, the trucks would have to use more ice, fuel and the factories would have to pay for workers who are simply waiting for delayed supplies. Poor road network constrains all agribusiness but in the case of fish, this may be the single most constraining factor among fish traders and transporters.

- **Quality testing laboratory services**. It is extremely expensive and unnecessary for every firm to establish and adequately equip a laboratory for quality testing. The Europe Gap regulations for example require farmers to regularly test the quality of their water sources – a thing that is obviously unaffordable by farmers. Such situations would require leverage by government as part of the infrastructural support to agribusiness. At the moment, fish processing firms carry out their own routine tests and contract private laboratories to do tests for which they have no capacity. A publically financed laboratory charging a reasonable user fee would reduce costs and overall enhance quality of products while providing a mechanism for monitoring of standards.

3.1.2 Lack of favorable credit facilities and no subsidy policy

Lack of investment capital is a limiting factor throughout all the value chains. Agribusinesses suffer from lack of access to credit at favorable terms or face the exploitation of commercial banks which charge unrealistic interest rates for genuine business. In the fish enterprise, some factories have either closed or are under receivership due to failure to pay back loans obtained from commercial banks. Lack of credit facilities has encouraged the use of cheap illegal fishing gears which would otherwise be minimized if recommended gears were provided to the fishermen on credit that they could pay back over time. The situation complicates enforcement regulation as the fishermen are left with no option to their livelihood.

With regard to vegetables, expansion in acreage is constrained by labor as the farmers rely on family labor. In the migration patterns where the youth are increasingly moving to the urban areas in search for employment, the rural community areas are left with the elderly to farm. The no subsidy policy to agricultural inputs adopted by government alongside structural adjustment policies makes inputs rather too expensive for the poor resource farmers. Micro-finance institutions (MFIs) have proliferated to provide credit facilities to small and medium-size businesses but their conditions, interest rates and repayment schedules are not favorable to agricultural related businesses whose markets are not reliable either. There is need for the government to establish a reliable source of favorable credit to agribusinesses to enable flow of income in the value chain extending to the producers who happen to be among the poorest categories of the population.

3.1.3 Lack of government action to support investment in value addition of local products

This is closely related to lack of favorable credit facilities but emphasis here is on moving from commitment by word to action. It is stated in several government documents including the PMA

how important value addition is to agricultural development. As shown earlier, indeed promoting agro-processing and access to markets is one of the priority areas for public action under the PMA but it all ends up on paper or in word of mouth. If agribusiness is to flourish, it has to be backed by government action to provide incentives including subsidies to agricultural production and value addition. A case in point is the stoppage of further purification of waragi by distilleries industries on the account that it is not as profitable as the imported consumable spirits from sugarcane. The brand "Uganda waragi" is proudly associated with purified waragi brewed from banana, but in reality this is no longer the case. Instead, consumable spirits from sugarcane are imported from South Africa, Kenya and Malawi and simply flavored and packaged/bottled. This is a clear example of government failure to demonstrate its commitment to value addition. It is rational for any business to go for options with highest returns or income accumulation, but on the contrary government should be more concerned with income distribution hence the support for value addition to benefit the entire value chain. In such a case, government would have to take deliberate action to subsidize and assist the distilling companies to acquire the necessary technology to add value to crude waragi brewed from banana and promote it internationally. Deliberate government action to support value chains guarantees financial flow to the producers and it is through such action that we can talk of functional poverty alleviation initiatives. It demands going beyond the usual rhetoric of government commitment to deliberate action.

Further, an exporter explained that banana (matooke) export to European countries is limited by its bulkiness and inability to do primary processing such as peeling. The overseas buyers prefer ready-to-cook product but the technology for peeling bananas is not yet available. Such market opportunities remain unexploited largely because the private sector alone is unable to invest in such capital intensive ventures. The much hyped Public-Private Partnership (PPP) would come to reality in such situations but only if the public sector was also proactive in collaborating with the private sector. The onus is not only on the private sector to seek support from the public sector, they are both equally responsible.

3.1.4 Stringent and ever changing international market standards

Euro/Global Gap sets very tough conditions which demand huge investment in the value chain to meet the required standards. These are dynamic – they change from time to time and some are consumer initiated. Fish and vegetable exports especially to European markets are severely constrained by these standards and regulations. In the vegetable enterprise, many farmers and exporters have dropped out of business because they are not compliant. Consequently, those exporters who had made huge investment in facilities are destined for huge losses as they can no longer raise enough volumes to economically run their facilities. The process of certification for the Europe/Global Gap is too expensive for a typical Ugandan firm. A relevant example is the firm that invested in construction of charcoal cooler but can no longer raise adequate volumes to effectively use the facility - most outgrowers are not compliant. The drive to innovate is suffocated. But all is not so bad about Europe/Global Gap, individuals and firms that are compliant are happy that it excludes otherwise unqualified competitors. But sustaining compliance calls for effective national regulatory and support systems – a public sector responsibility.

3.1.5 Education

Europe/Global Gap assumes a fairly reasonable level of education even among farmers to be able for example to keep records of farm management practices. This is unrealistic in a situation where a large proportion of farmers are illiterate. The universal primary education started about a decade ago and the recently introduced universal secondary education policies are likely to address this constraint but only in the future generation of farmers. Low education levels limit the capacity to access and utilize existing body of information/knowledge. Use of ICT is severely curtailed by low levels of education.

Education is also key to conscious observance of health and hygiene practices which are a strict requirement in handling of food. A quality assurance manager of a fish processing firm explained the ease with which the relatively educated employees internalize and appreciate adherence to hygiene practices compared to the uneducated ones. Education is therefore a basic necessity for agribusiness innovation.

3.1.6 Weak enforcement of laws and regulations and political interference in the enforcement

The existing laws and regulations are hardly enforced due to weak public sector institutions empowered to do so. A recent newsletter published by UFPEA displays for example recommended fishing boats against those presently used. But adoption of recommended tools is limited by lack of credit to purchase them. This puts government in a position of double failure – the same government that fails to facilitate access to recommended tools and facilities cannot effectively enforce non-use of illegal ones. Fish is transported in boats together with all kinds of merchandise, a practice that is otherwise unacceptable. Institutions that are meant to enforce regulations such as ministries and National Bureau of Standards (NBS) do not have the capacity (human resources and facilitation) to do monitoring and surveillance. A similar challenge is faced in vegetables with regard to implementation of phytosanitary regulations. Whereas there are established standards for most practices and products, they are largely unknown especially to the producers because they are not enforced.

Further, the situation is exacerbated by political pronouncements that contradict existing laws and regulations. Example is given of a presidential pronouncement to stop apprehending traders transporting juvenile fish. Though this was later retracted, it left the enforcement authorities demoralized. It is also noted that some district authorities are more interested in raising revenue than controlling unacceptable practices hence protecting trade in juvenile fish. Weak enforcement and corruption within the enforcing institutions encourages illegal practices to go on unabated. For example, the Fisheries act prohibits export of unprocessed fish, but unprocessed and juvenile (under-size) fish is exported to neighboring countries in the face of authorities that are meant to enforce the act. Similarly, whereas the UFPEA is striving to stop processing and export of juvenile fish, it is openly sold on the local market rendering the concerted effort of the private sector redundant.

Some policies cannot be implemented simply because they are at fault right from the design stage. They are based on wrong premises and sometimes misplaced in terms of implementing

authorities. Mention is made of the Food Safety Bill which is marred by confusion as to whether it should be based in the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) or in the Ministry of Health (MoH). If all relevant stakeholders are not sufficiently involved in the policy development process, the policy may be faulty by design and therefore unimplementable.

3.1.7 High freight costs

Uganda is said to have the highest freight charges among its competitors in the region. It is for example estimated that the freight costs per unit in Uganda are three times as high as those in Kenya which makes Ugandan products more expensive or the business less profitable. High costs are partly associated with high taxes imposed on airlines but the lack of a national carrier also makes it very difficult for government intervention. By implication, Ugandan products are more expensive than those from competing countries. This year's national budget attempted to reduce taxes on airlines revenue, which has translated into appreciable reduction in freight charges but a lot more needs to be done.

3.1.8 Open access policy to the lake resources

This is a specific concern to the fisheries enterprise. Unlimited access to lake resources attracts every interested person to go fishing and they come along with all sorts of fishing methods and gears to exploit a free resource. This makes it difficult to enforce regulations and standards regarding fishing on the lakes. Limited access would ensure that those in the business are compliant with minimum standards and practices.

3.2 Agribusiness support policies

The supportive policies for agribusiness include non taxation policy on agricultural exports, liberalization of trade and service delivery, and a specific one to fish business is the burning of illegal fishing gears.

3.2.1 Non-taxation of agricultural exports

As a matter of policy, agricultural exports are not taxed as an incentive to agricultural exports and marketing in general. In addition, imported packaging materials for exports and equipment doe value addition attract a minimal tax. So far this has been beneficial especially to the exporters

3.2.2 Liberalization of trade and service delivery

Liberalisation of trade and service delivery has particularly improved the communication sector which is very vital in agribusiness. Mobile telephone services are affordable and are accessible countrywide. This has greatly eased information flow and linkages with markets, service

providers and other actors. Communication is critical in value chains of highly perishable products like fish.

3.2.3 Burning of illegal fishing gears to protect juvenile fish

Though the policy still faces challenges of effective implementation as earlier explained, inappropriate fishing gears have been burned to protect juvenile fish and sustain the fish resources. This provided the frame for UFPEA for example to put in place a mechanism for enforcing the policy amongst its members. Here we see how the private sector can support enforcement of a beneficial policy. In chain reaction, the fishermen will have no incentive to catch under-size fish.

4.0 COORDINATING LINKAGES IN VALUE CHAINS FOR ORGANISATIONAL INNOVATIONS

For a value chain to function, coordination is essential amongst actors in the chain. This also implies that the actors at various levels have to be organized. Many of the innovations discussed earlier are of organizational nature and are basically emanated from the need to interact with other organizations. Actors in each chain organize and interact differently but the bottom line is that interaction and coordination are necessary in innovation processes. It is at the interfaces of these interactions that information and knowledge translate into innovations that bring about economic and social benefits. Interactions are discussed with respect to organizations of actors within the value chains; linkages with support agencies and service providers; linkages with knowledge/technology generation and training institutions; and public-private sector interactions.

4.1 Organization and linkages within the chain actors

4.1.1 Organization in the fish value chain

All value chains exhibit some form of organization although some are more elaborate than others. In fish enterprise, there are several informal associations of various actors at the production level. These perform several functions including collective articulation of their needs and interests, social support to each other and joint savings which are sometimes used as revolving credit fund. No organization for the traders and transporters was encountered. At the level of processors/exporters, a more formal organization the Uganda Fish Processors and Exporters' Association (UFPEA) exist. The mission of UFPEA addresses strengthening participation of its members to promote Uganda fish products, foster partnership with government with respect to policies and programs in fisheries sector, promote sustainable use of fisheries resources, and assure quality in fish processing.

In some cases, the fish traders provide boats and fishing equipment to the fishermen and by this arrangement the fishermen get operational facilities at no cost and in return are committed to sell all their fish catch to that particular trader. The trader benefits by raising adequate volume to supply the processors. Similarly, some processors provide insulated trucks and/or ice to their suppliers as incentive for the traders to maintain their supply to the company. This is a form of credit system to facilitate operations within the value chain. Transactions of this nature are based on non-formal agreements – they rely on mutual trust.

The fish processor/exporters interact via UFPEA with regard to policy, quality assurance, and upstream training. Inter-organizational interaction for purposes of learning together to innovate is limited by cut-throat competition. The system is firewalled at the operational level though UFPEA provides a platform for joint learning related to general aspects of the fish industry. How each firm applies the knowledge and skills is consciously guarded.

4.1.2 Organization in the vegetable value chain

In the vegetable value chain, small holder out grower farmers are organized in cooperatives clustered around the exporter as a nucleus. At this level, the cooperatives are intended to enable farmers bulk their produce, jointly procure inputs and services, and for ease of training and learning among other things. The exporter extends credit to their outgrowers in terms of inputs recovered by deductions from the sale of their produce. Training and technical support are the other services that the exporters extend to their outgrowers.

In most cases, the exporter is also a producer but this level of producer does not fit in the smallholder outgrower cooperatives. For some time, producers have been organized into a national association called Horticultural Exporters' Association (HORTEXA). HORTEXA is broader than just vegetables; it embraces all other horticultural producers including fruits, and flowers. This caused confusion with regard to specific interests of producers and exporters of various horticultural products.

A new organizational arrangement is in place to streamline roles and responsibilities between producers and exporters. HORTEXA now addresses horticultural production related aspects. The Association of Fresh Produce Exporting Companies (AFPEC) has been formed to address export related aspects and all exporter companies also aggregate into the Federation of Associations of Ugandan Exporters (FAUEX). To coordinate all these, an umbrella organization called the Horticulture Promotion Organization of Uganda (HPOU) has been created. There is also another strand of organization for producers of organic products, NOGAMU. HPOU is the voice of the fruits and vegetable industry and coordinates activities and responsibilities of its subsidiary organizations. Each exporter however has direct link with the market and the associations only coordinate aspects of common interest.

4.1.3 Organization in the banana value chain

The banana value chain is not as elaborately organized and coordinated as the others. As earlier explained in this paper, farmers have of recent organized themselves purposely for collective price bargain. Informal organizations are cited among traders who basically pool resources particularly with respect to transport. A group of 3-4 traders combine to hire a truck to transport bananas to the market. Similar arrangements are seen in the transportation of waragi to the various markets (see picture). It is the crafts makers who are mainly women that seem to exhibit long-term organizational arrangement through their women association. These associations are more active in marketing and promoting their products.

4.2 Linkages with support agencies and service providers

Support services such as training and funding for strategic intervention in the respective sectors are coordinated by the umbrella type of organizations. HPOU for example solicits support for capacity building and facilitation for services such laboratory testing from foreign donor agencies. The support is then directed to the respective associations for implementation. A good example is subsidy for tests in a certified laboratory from PIP, a Dutch NGO. The NGO pays 80% of the cost of laboratory service and the local company pays only 20%. Tests in a certified private laboratory can otherwise be too expensive for a company to bear by itself.

These organizations also interface with foreign partners for purposes of learning and developing strategies that can promote growth of their related agribusinesses. The box below describes such and experience of HPOU with their Kenyan IFPEC.

Box 2: Institutional interaction and learning for innovation

Under the umbrella of HPOU, we organized a visit to our Kenyan counterpart, IPEC to learn from them how they are organized and how they have managed to comply with the Europe Gap regulations and conditions. We spent two week exchanging ideas, experiences and visiting some of their members. What we learnt from that visit included the following:

- Use of website to inform partners on what is happening in the horticultural industry but more especially on what measures being taken to respond to the Europe Gap
- Documentation of whatever they do and make that information available to all their stakeholders in and outside the country
- To respond to the Europe Gap, they organized a meeting of all stakeholders and formed a technical committee which helped to interpret Europe Gap clause by clause and devise appropriate means of responding to each of them. Focus was on improvising to meet the same purpose of the Europe Gap.
- The relevance of developing the country Gap and clarify the roles and responsibilities of the various stakeholders as an internal regulatory mechanism

Source: Rashid Sekandi, Publicity Secretary HPOU

Learning from that experience, HPOU has as a matter of urgency developed a website to make the horticulture industry in Uganda known to the rest of the world. This was collaborated with complaints from the European market partners that there is no information about Uganda. In addition, a technical committee has been set-up to interpret the Europe Gap and advise on the appropriate responses that fit the Ugandan context. The Uganda Gap which sets the standards and practices is also under development. The other associations such as HORTEXA, AFPEC and FAUEX also solicit support and services of specific nature to benefit their membership. Through such interfaces, the associations bring in knowledge and experiences that can be the springboard for agribusiness innovation.

Similarly UFPEA in addition to the resources generated by their membership also solicit for resources from donor agencies to support some of their programs and services such as training.

They also sometimes facilitate some of their members to participate in exhibitions in and outside the country.

4.3 Linkages with knowledge/technology generation and training institutions

Training and research institutions are key actors in any innovation system as they are usually in custody of or have access to a huge amount of information/knowledge. Their interaction with other actors in a value chain would expectedly enhance the level of innovation. The agribusiness firms too generate knowledge through their own research and experiences which would invariably be useful to the training and research institutions.

4.3.1 Linkages with research and extension institutions

Of the three value chains, the fisheries via UFPEA seems to have closer collaboration with the National Fisheries Research Institute (NaFRI). There are indications of collaboration in the generation of information/knowledge through survey and product development. In the vegetable value chain, the firms occasionally consult research institute when they experience peculiar problems but there seems to be not joint undertakings or regular contact. For vegetables, technical services are accessed via the exporters who source such services sometimes from technical experts outside their firms. In this way, they may use researchers but more on personal arrangement than institutional collaboration. The national Agricultural Advisory Services (NAADS) which contracts private firms to deliver services seems unprepared to provide specialized services to these value chains. Most firms somehow have access to computer in their Kampala based offices and use it mainly to access market related information. Internet for example is yet to be adequately utilized to access technical information that can enhance innovations of the agribusiness firms. Some of the constraints to internet use include its cost, computer literacy, and lack of electricity in the rural areas.

The research institute at Kawanda, has a banana research program focusing on variety improvement as well as pest and disease management. The impact of this program has been more in the supply of disease resistant germplasm. The National Agricultural Advisory Services (NAADS) is cited here for the supporting multiplication and distribution of clean planting materials. Another collaborative banana research program between Makerere University and the National Agricultural Research Organization (NARO) emphasizes value addition and product development but such research driven innovations in incubation are outside the scope of this study. In general, whereas there might be some contact research institutions, agribusiness firms do not think they are involved in determining the research agenda. They are hardly consulted on research priorities for the agribusiness sector.

Some firms also conduct some form of research to advance their businesses but not of the conventional nature evidenced by reports and publications. The individual fish processing firms conduct routine quality tests and sometimes pay for such services to private laboratories. They also experiment on several practices, for example, one of the firms consulted, Tropical Fish cited experimentation of various ways of skinning and trimming which they said had enabled them

make significant gains in yield of fillets. Another firm for example explained how they surveyed the local market and found out that in a 25 Km stretch between Kampala and Entebbe, they are over 20 supermarkets/groceries they could supply vegetables regularly but the company could only satisfactorily supply seven of them. There is no documented evidence of these research undertakings – knowledge is generated and used immediately.

4.3.2 Linkages with training institutions and Bureau of Standards

It would be expected that the training institutions, i.e. universities and colleges that produce professionals collaborate with the existing agribusiness firms to train relevant graduates or the sector. Most of the firms consulted do sometimes host trainees from various training institutions for internship. This is however, irregular and there are neither clearly defined nor shared learning objectives between the learners, training institutions and the business firms. The firms complain of a negative attitude of university trainees towards hands-on work – they despise work that involves getting dirty. There is concern of an extractive behavior by students and researchers from the university who only seem to be interested in collecting data from the companies but not to work with them to develop the agribusiness sector. Though some firms acknowledge benefiting in terms of additional labor, benefits of hosting internees by the agri-business firms are yet to be internalized. Inevitably, if the agribusiness sector expects to rely on professionals to champion their interests as implied in the Europe Gap, the private sector firms have to participate in training of the professionals including curriculum design. An incentive system is necessary to the volunteer firms to provide training opportunities for the future professionals. But the training institutions have to come down to negotiate arrangements with the private sector on mutually agreed terms. HPOU has a university representative on their technical team and it is such steps that bring hope for more active engagement between universities and the agribusiness sector.

With regard to standards, the agribusiness sector relies on standards from outside – usually from the market. There is no clear knowledge of the local standards they are expected to comply with. The National Bureau of Standards is responsible for standards but it seems to be far detached from the agri-business sector. It is for this reason that the Uganda Gap, if developed and championed by the private sector will establish and enforce standards that are relevant to the specific agri-businesses.

4.4 Public-private sector interaction

The agribusiness sector interacts with the private sector via their respective umbrella associations. One of the main objectives of the associations is to lobby for appropriate policies and government support to the agribusiness sector. There some examples of engagement between the associations and the public sector specifically ministries and government departments. Much of the interaction however revolves around policy development and/or implementation and resource mobilization for investment in infrastructure and services delivery. Associations have a strong representing many stakeholders that can catch the attention of policy makers and technocrats.

UFPEA for example and the MAAIF have for example secured funding from the European Union to support various developments in the fish sector. Part of this fund will be used to develop basic infrastructure at the landing sites for handling of fish, some of it is used for capacity building including quality assurance and some for mobilization, sensitization and education of various actors in the fish sector. UFPEA and MAAIF are currently engaged in a sensitization program for various stakeholders on the theme: “Fish for the future”. There are also policy dialogues and complementary efforts in enforcement of rules and regulations. Sanctions for violating UFPEA quality standards and protocols are enforced through the Commissioner for Fisheries demonstrating collective responsibility between the private and public sector.

HPOU has initiated a policy dialogue with MAAIF to develop specific policies that address horticultural industry and is also involved in streamlining the food safety bill. HPOU is preparing itself to play an active role in implementation of the food safety procedures as failure of implementation affects their members most. Development of the Uganda Gap is a related activity that is envisaged to put in place protocols, procedures and regulations where HPOU and MAAIF will have to work in closer partnership. As a building block with MAAIF, HPOU has representation of MAAIF on its technical committee. Other areas of collaboration include capacity building (training and infrastructural development) and resource mobilization.

5.0 DISCUSSION AND CONCLUSIONS

5.1 Discussion

The existing policies demonstrate the good intention on part of government to create a conducive environment and provide support services for the growth of agribusiness in Uganda; however this good intention has not been successfully translated into action. Nearly all the constraints described in this study can be linked to public policies which would otherwise provide the solution. In this perspective, the critical constraints in agribusiness are not because of lack of policies but they exist inspite of good policies. The challenge is implementation of policies which is curtailed by lack of adequate human resource capacity and facilitation as well as inappropriate institutional arrangements for effective implementation. The PMA for example provides a comprehensive framework for supporting agriculture in general and agribusiness in particular, but its implementation is fragmented, uncoordinated and inadequately funded. For example, in practice, bits and pieces of PMA are implemented by a variety of government agencies creating confusion as to who has overall responsibility. Agricultural advisory services and research are implemented by semi-autonomous organizations NAADS and NARO respectively under guidance of MAAIF; marketing and agro-processing (MAP) is under Ministry of Tourism Trade and Industry (MTTI) with some components being under Ministry of Finance, Planning and Economic Development (MFPED) and Ministry of Foreign Affairs; The President's Office and Vice-president's Office also do implement parallel programs under the umbrella of PMA.

Whereas it takes concerted efforts within government to bring about agricultural development, these efforts have to be well coordinated and rationalized; otherwise the little resources available are simply put to waste. But there is a political dimension to implementation of agriculture related policies. The majority of the population being dependant on agriculture, politicians would want to be seen to be implementing agricultural programs as a means of gaining or strengthening their political support. There is a view from the technocrats that these policies should be harmonized and their implementation better coordinated to achieve their intended outcomes. This will possibly put the available resources to better use notwithstanding the need to increase financial support for implementation of agribusiness support policies.

Agro-processing is a trigger for innovation in a value chain as the value added products have a wider market and producers too are assured of a market for their produce. This is where government needs to deliberately support agribusiness firms involved in processing as the risk of innovation may be too high for the private firms. A private firm will easily and so logically take the option that gives highest returns as the primary goal is not necessarily to develop the value chain. The situation where distilleries have abandoned further processing of crude waragi from banana in preference for the easier and more profitable imported consumable spirits. The main reason being that the technology for processing the crude waragi is very expensive. Stimulating innovation in such a value chain and to guarantee livelihood of those dependent on the chain necessitates government intervention otherwise private firms would always prefer the cheaper or more profitable options.

The international trade policies have placed stringent conditions that exclude poor countries like Uganda from the international markets. The Europe Gap for example, severely limits export of horticultural products from Uganda due to inappropriate infrastructure and regulatory systems. The export orientation (mainly to Europe) increases the vulnerability of agribusiness in Uganda as the support system does not cushion against the high risks associated with innovations. The ever changing international market regulations do not only demand higher investment by agribusiness firms, they also demand governments to invest in infrastructure, regulatory organs and agri-business support services. Functional regulatory systems would possibly stimulate agribusiness innovation as this would be an internal source of threat to business. It is reported by the technocrats that there are established standards to most practices and products which if enforced would make it easy to comply with international market standards but their enforcement is extremely weak. As discussed earlier implementation of some policies is complicated by lack of support services such as credit.

Innovation is usually an outcome of knowledge interfaces facilitated by institutional interactions. This necessitates a reasonable level of organization among the agribusiness actors. There is a trend towards building such organizations as some of the 'innovations' in this case are of organizational nature but for an emerging private sector this has to be supported and facilitated by government. The intention is to create the organizational capacity of the private sector to interact with public and international agencies as a foundation for innovation. This type of organization is still weak leaving opportunities for public-private partnerships to steer innovations rather unexploited. Organization of the agribusiness sector creates the collective bargain and recognition to foster public-private interaction as illustrated by emerging relationship between UFPEA and HPOU and government department in program implementation and policy development respectively.

There is evidence of learning resulting from interaction between HPOU and their Kenyan counterparts that stimulates creativity. More can be achieved if for example agribusiness firms and their organizations interact with knowledge and technology generation institutions such as universities/colleges and research institutions to exchange knowledge and experiences of mutual benefit but this is yet to be realized. Both sides need to be proactive in establishing such linkages based on clearly defined common interest. Agribusiness firms involved in exports are linked to external market and other support organizations but these linkages are have not been fully utilized for learning and innovation. There is a capacity issue here (competence and access) for the agribusiness firms to utilize the electronic platforms such as internet for learning and innovation but this also comes at a cost which many of the constrained firms may not be able to sustain. The cost of internet is still high and at the moment it is more used as a communication channel than a learning platform.

Learning within the value chains is facilitated by umbrella organizations which solicit for technical support and provides training and other support services to the members. But this is not adequate to enhance innovation as such training is usually supply driven providing technical aspects rather than focused on exchanging knowledge and experiences. Competition within the value chain seems to be a barrier for free flow of knowledge amongst the members. This is also

reflected in the suspicion by some firms to provide information regarding their business for fear of it being used by competitors. The challenge is opening up to allow knowledge exchange in a competitive environment. Non-business organizations such as training and research institutions would be best placed to facilitate platforms for knowledge exchange but their involvement in value chains is rather disconnected from the business actors.

5.2 Conclusions

Based on the findings in this study, the following conclusions can be made:

8. Public policies constrain agribusiness innovations but these constraints are not necessarily due to lack of supportive policies but rather the lack of or inadequate implementation of policies. Existing policies demonstrate good intention which can only be beneficial if action for implementation is taken.
9. Agribusiness innovations in the value chain are stimulated and sustained by market guarantee which in turn is enhanced by value addition. Processing in this case is essential as the products have a wider market but the investment required and associated risks are sometimes too scaring to the private investors. Government deliberate action to support agro-processing by offsetting some technology related costs and providing some form of insurance are likely to enhance agribusiness innovation.
10. Innovation requires a high degree of organization at the individual firm level and at collective level of associations. Association of interest groups is itself an innovation that creates the support systems for further innovation within its members. The association serves to articulate and lobby for conditions and services that enhance a competitive business environment thus inducing creativity. At the same time, associations are the connectors for public-private partnerships.
11. Markets and market conditions drive innovation in a value chain if they are challenging enough but achievable. However if the conditions are overwhelmingly defeating, they impede innovation. The role of government is very significant in providing the necessary infrastructure, setting standards and regulating them, and providing support services such as training, credit and insurance facilities for the private agribusiness firms to cope.
12. Knowledge is the key to agribusiness innovation, but knowledge is more than just accessing information. Knowledge is association with learning as an interactive process which brings together those who know and want to learn. Platforms for such interaction are essential to facilitate knowledge exchange. Firms and individuals who avoid such learning platforms are inevitably excluding themselves from opportunities for innovation. Competition amongst firms dealing in related business is a hindrance to agribusiness innovation.
13. Knowledge is increasingly becoming a global public good but agribusiness firms need to gain capacity to utilize global knowledge in the public domain. Internet is particularly of great relevance as provides a variety of opportunities including interacting with world-wide knowledge sources, marketing and communication. This media is currently under-

utilized by limiting its use to communication and market information access. Interventions for enhancing its access and user-capacity building are necessary to enable agribusiness firms tap into global knowledge to support their adaptive capacity, hence innovation.

14. There is a challenge in creating national agribusiness innovation systems as the technology/knowledge generation institutions and/or training institutions are apparently disconnected from the value chains. Inappropriate attitudes on either side and failure to create a shared vision are part of the problem. To facilitate innovation, it is desirable that research institutes and training institutions integrate and interact with actors in the value chains in mutually beneficial manner. Incentives for continued engagement are necessary but first and foremost, the mutual benefits and mechanisms for interaction have to be clarified to avoid a sense of exploitation by either side.

ANNEX I: LIST OF PERSONS CONSULTED

	Name	Firm	Category	Address
	Fish Value Chain			
	Focus group with 15 fishermern	Kibuye landing site, Nakasongola District	Producers	Kibuye landing site, Nakasongola district
	Ssonko Karim	Easy Group, Kibuye Landing site	Trader	Kibuye Landing site, Nakasongola district 0775617276
	Byaruhanga Jackson	Easy Group	Trader	Kibuye Landing site, Nakasongola district 0782711633
	Bogere James	-	Trader/ transporter	Zegede landing site, Nakasongola district
	Odero Obar James	Tropical Fish Industries	Processor/ Exporter	P.O. Box 10702, Kampala, Tel: +256 414 254984 Mob: +256 772 211994 Fax: +256 414 233829 E-mail: jtropical@yahoo.com www.tropicalfish.com
	Walusimbi Dirisa	Gaaba BMU	NGO/ regulatory	Gaaba landing site, Wakiso district Tel: +256-712 884810
	Kaleeba Godfrey	Gaaba BMU	NGO/ regulatory	Gaaba landing site, Wakiso district Tel: +256-712 803281
	Ssebuwufu Edward		Trader/ Transporter	Gaaba landing site, Wakiso district Tel: +256-752 560252
	Grace Semwogerere		Producer (fish farmer)	Mukono district
	Tibyasa William	UFPEA	NGO	Tel: +256-712 736413
	Hassan Muhammed	Kalerwe market	Trader	Tel: +256-782109107
	Banana Value Chain			
	Berunga Robert		Trader - Waragi	Nakulabye, Kampala Tel: +256-782 693139
	Aliganyira Moses		Trader - Waragi	Nakulabye, Kampala Tel: +256-782 603709
	Ssemwanga Samuel		Producer	Namigavu, Kikandwa, Mityana district Tel: +256-772 467416
	Balyesima Desteo		Producer	Kagadi, Nakanyangoma,

				Kibale district
	Focus group interview with 4 crafts makers	Contact person – Molly Nakiganda	Producers	Tuula, Kawempe division, Kampala
	Lukwata Musa	Kalerwe market	Trader	
	Kayiira Muwada	Kalerwe market	Trader	Tel: +256-772977835
	Vegetable Value Chain			
	Kisabagire Amos	Jackson's Firms	Producer/ Exporter	Gomba, Mpigi district
	Tamale Aloysious		Producer	Binzi village, Mpenjja subcounty, Mpigi district Tel: +256-754 195116
	Aine James	Sulma Foods	Producer/ Exporter	Luwero district, Tel: +256-774 764500
	Kaggwa Umran	Agribusiness Management Associates (U) Ltd.	NGO/ Service provider	Kisozi Complex, P.O. Box 21348, Kampala, Tel: +256-414 231312 Mob: +256-772 402901 Fax: +256-414 346766 E-mail: uks@infocom.co.ug www.ama-uganda
	Ssekandi Rashid	HPOU/ SERA Growers	NGO/ Producer / Exporter	Tel: +256-772 406098
	Peter Mayega	Naami Firms	Producer/ Exporter	
	Policy guidance / ministries			
	Agaba Raymond	Acting Commissioner, Internal Trade, Ministry of Tourism, Trade and Industry (MTTI)		P.O. Box 7103, Kampala Tel: +256 414 256713 Mob: +256 772 618794 E-mail: ragaba@mtti.go.ug
	Okasai Olupot	Commissioner, Crop Production and Marketing, MAAIF		P.O. Box 102, Entebbe, Mob: +256 772 589642

ANNEX II: INTERVIEW CHECKLIST

General Information:

Name of firm: _____

Year of establishment of the firm: _____

Number of employees: _____ professional employees; _____ Casual employees

Status of firm: ___ Legal entity; ___ Not legal entity

1. Business & Enterprise		
1	**a).** What new ideas or knowledge or information have you or your firm tried or utilised in the past 3 years to improve the performance of your business? **b).** What was the source of this knowledge? **c).** How did you do this?	
2	**a).** In which way has your organisation organised differently in the past one year in order to ensure effectiveness & efficiency? (new marketing arrangements or more efficient product processing) **b).** How did you do this?	
3	**a).** What do you see as the major limitations at the moment to improved productivity and/or sales by your firm? **b).** What could be done in order to overcome those limitations?	
4	**a).** What legal constraints (related to labour, land, etc.) affect your firm's operations? **b).** How do you deal with them? **c).** What changes could be beneficial?	
5	**a).** What existing standards (weights, quality, environmental safety, etc) are you expected to comply with? **b).** Are they enforced?	
6	**a).** How do government policies affect (help or hinder) business prospects for your firm? Please explain.	
7	**b).** Do you think Government officials support technological change or innovations in Agribusiness?	
2. Innovation Finance, Outputs & Markets		
8	**a).** What are your sources of finance for investment in innovations? **b).** Are these sources sufficient? **c).** What needs to be improved?	
9	**a).** Are there any innovations in your firm that are constrained by limited funding? **b).** If so, what innovations are those?	
10	**a).** Are there any support systems to innovate and expand use of technology (e.g. loan guarantees, fertilizer subsidies, equipment subsidies, seed subsidies?	
11	**a).** How do you deal with the risks associated with new innovations and or technologies? **b).** What role does Government play?	
12	**a).** How is your business affected by current taxation system? **b).** Given the taxation system how do you cope with the risks?	

3. Interactions & Linkages		
13	**a).** Who are the main external actors that influence your business (Public sector? Other firms? Collective or business associations?) **b).** What are their main roles? **c).** How do they facilitate /impede your business?	
14	**a).** Do you collaborate with other firm to foster innovations and technology? **b).** Who do you collaborate with and how?	
15	**a).** How do you interact with local government, national parliament, and ministries? **b).** On what issues do you? **c).** Who initiates these contacts?	
16	**a).** Do you have any contact with firms / organisations outside this country? **b).** If so what is the purpose of these contacts	
17	**a).** Do you belong to any local business association? **b).** What associations? **c).** What are the objectives of this association? **d).** What do you benefit?	
4. Knowledge & Information Flow		
18	**a).** Are you aware of any platforms for sharing innovations new knowledge **b).** Do you participate in platforms for sharing innovations new knowledge (e.g. as agricultural shows, field days, workshops, conferences, UMA etc)? **c).** Who organises them? **d).** How could your participation be enhanced?	
19	**a).** Do you have any contact or relationships with agric institutes & universities? **b).** If yes what do you find to be the most useful aspects of these relationships?	
20	*a). What is your working relationship with input suppliers in terms of access to knowledge and information?* b). *What do you find to be the most useful aspects of these relationships?*	
21	**a).** If you experience a technical problem in your firm, where do you seek assistance? **b).** Which organizations do you find particularly helpful in this regard?	
22	**a).** In what ways does your firm make use of ICT in its operations?	
5. Education & Human Resources		
23	**a).** How many employees do you have? **b).** Where are they trained? **c).** Do they have adequate skills to do the job well?	
24	**a).** Do you host any students from universities or colleges for internship? **b).** What are the incentives for doing this?	
25	**a).** What mechanisms are in place to upgrade the skills of your employees? **b).** What could be done to facilitate this process?	
26	What can be done to make the education system more relevant to your firm?	

6. Creation of New Knowledge		
27	**a).** Are you ever consulted by research institutions in setting their research priorities? **b).** Does your firm conduct any research 'in-house'? **c).** If so, what type(s)? **d).** What are the limitations? **e).** If no, do you pay others to conduct the research? **a).** What type of research is done? **b).** What impact has it had in your business?	
28	**a).** Do you know of any organisation that supports private sector research? **b).** If so who are they?	