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Magesa, Mawazo M.

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TOWARDS A FRAMEWORK FOR ACCESSING AGRICULTURAL MARKET INFORMATION

Mawazo M. Magesa
Nelson Mandela - African Institute of Science and Technology
Tanzania
magesam@nm-aist.ac.tz

Kisangiri Michael
Nelson Mandela - African Institute of Science and Technology
Tanzania
kisangiri.michael@nm-aist.ac.tz

Jesuk Ko
Gwangju University
South Korea
widewoods63@yahoo.com

ABSTRACT

Making markets work for the poor in rural communities involves different stakeholders. Management, development partners, private sector and NGOs are accustomed to ensure enabling infrastructure is provided. Access to markets requires good transport and low transaction cost accompanied with recent market information. To provide market information to rural community, stakeholders may initiate the program by providing funds and finding the means of ensuring the sustainability of the program. Delivering market information requires established ICT infrastructure and capable staffing. Thus, a framework to access agricultural market information requires management to provide infrastructure and funding, and also to ensure rural areas are equipped with the technology.

Keywords: Agriculture, agricultural market information, ICT infrastructure, supply chain, information and communication technologies

1. INTRODUCTION

In many African developing countries, agricultural sector is regarded as the engine of industrial development. In Tanzania, agriculture contributes greatly to GDP, export earnings and employs over 82% of the workforce (Adam et al., 2012; Manda, 2002; Mkenda and Campenhout, 2011). Majorities of citizens who are engaged in agricultural sector are small-scale farmers living in rural areas whose main source of cash income is the selling of agricultural products (Eskola, 2005; Mkenda and Campenhout, 2011). The sector is very important in generating demand for industrial goods and services. Further, the sector plays a key role in ensuring national food security, and in the process, national security as well. In general, the agricultural sector has a strong multiplier effects across the economy. There is increasing consensus that, in a globalizing economy, a long-term economic growth agenda in developing countries would be feasible only if it has agricultural development that raises rural incomes as its central concern. Dorward et al. (2004) stresses that agricultural development and productivity gains can stimulate and sustain economic transition as countries shift away from being primarily agricultural towards a broader base of manufacturing and services.

Performance in agriculture determines the overall improvement in rural people's living standards and development of the economy (URT, 2008). Cultivation of agricultural produces by rural farmers in Tanzania is mostly meant for both food and selling purpose. Selling of agricultural

produces by rural farmers pause a challenge as their access to markets is limited. Due to this, the concept of agricultural marketing has gained more ground in the debate as farmers have failed to sell their crops or the prices paid have been lower than expected (Eskola, 2005). A number of factors have constrained agricultural development in Tanzania. Barham and Chitemi (2009) found poor functioning market in the regions, commodity types grown, land, and unreliable water source thus depending on rain-fed agriculture have effects on agricultural development in Tanzania. On the other hand, Barrett and Mutambatsere (2008) argued that agricultural markets in developing countries functioned less efficiently than limited rule of law, and restricted access to commercial finance. Access to markets by smallholder farmers is also constrained by a long and discontinuous supply chain, inadequate policy support, and limited opportunities for value addition (Rao, 2007). More access to markets by smallholders is envisaged to lead to increased incomes and food security, more rural employment, and sustained agricultural growth (Barham and Chitemi, 2009; Dorward et al., 2003).

Smallholder farmers in rural areas usually depend on available thin local rural markets and traders travelling to village markets to collect farm produces (Birthal and Joshi, 2007; Torero, 2011). Also, farmers growing cash crops have been depending on available cooperative unions for selling their produces. Besides, they also face problems in gaining access to credit, high quality inputs, improved technology, information, and services (Birthal and Joshi, 2007). As a result of this, incentives remain weak, investments remain low, and so does the level of technology adoption and productivity, resulting into a low level equilibrium poverty trap (Torero, 2011). This leaves a small number of well-off farmers with favourable conditions for production to be the primary beneficiaries of agriculture developments (Birthal and Joshi, 2007; Chipeta et al., 2008). This also leads to the accumulation of massive buying power by a limited number of individual traders, companies and institutions (Onumah et al., 2007). All these leave smallholder farmers exploited by other markets participants like traders, middlemen and processors. As a result of this smallholder farmers remain poor and depend on subsistence farming.

With the recent development of information and communications technologies, agricultural marketing environment is changing in a very diverse ways, both locally and globally. These changes are the result of globalization and liberalization as well as demographic factors, particularly urbanization (Onumah et al., 2007). The current agricultural marketing system has introduced new market players and created new market opportunities. Producers are exposed to increased risks in terms of uncertain access to markets, price instability and the risk of counterparty non-performance. Producer farmers are largely affected by trade liberalization, changing market structure and new supply chain – domestic and international (Chipeta et al., 2008).

The question to ask is how can smallholder farmers be linked to markets? Scholars have proposed to establish institutions that can reduce the marketing risk and transaction costs in the process of exchange between producers and consumers (Birthal and Joshi, 2007; Torero, 2011). The main purpose of establishing the linkage is to coordinate supply and demand between farmers and other market participants like consumers, agro-processors, traders, and retailers, exporters and the concerned institutions (Birthal and Joshi, 2007). There are numerous advantages of linking farmers to markets and other market actors (Shepherd, 2007). Farmers are more assured of markets with less risk, and can better access transportation, logistics and primary processing. Farmers can also develop better knowledge on market demand, and possibly

advanced knowledge of price and quality control. Besides, buyers may arrange credits and supply inputs to farmers.

2. OBJECTIVE, METHODOLOGY AND AREA OF THE STUDY

This study sought to examine the platform or framework for linking smallholder farmers to markets. The framework considers how agricultural information can increase access to markets and provide linkage to other market participants. Besides, the framework considers how access to agricultural market information services can open doors for other opportunities like increased productivity, increased trade, and access to finances and credits etc. This article draws much of its argument from previous studies (Magesa et al., 2014a, b) published by the author that were conducted in three districts in Tanzania, namely Hai in Kilimanjaro region, and two neighboring districts, Mvomero and Kilosa, both in Morogoro region. The study targeted rural agricultural producers in Tanzania and thus much of the literatures cited are within Tanzania's context.

3. DISCUSSION

3.1 Agricultural Value Chain in Tanzania

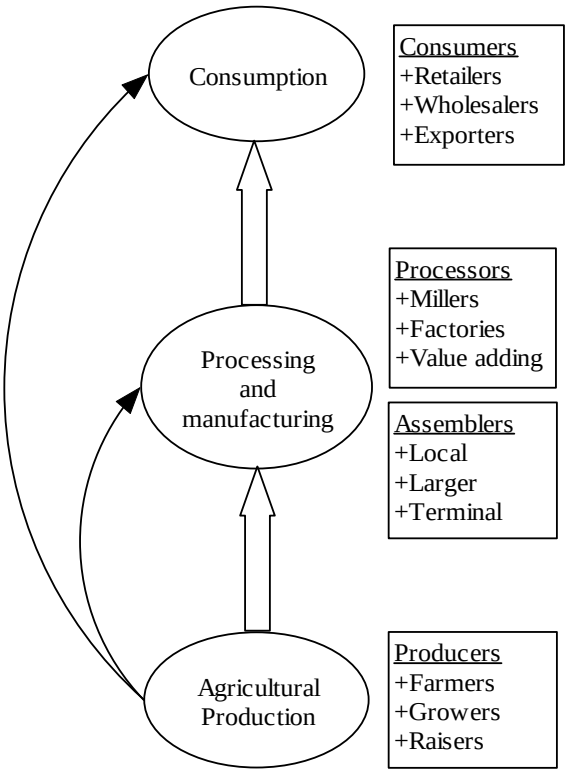

Figure 1 Agricultural Value Chain

Agricultural value chain is a very useful tool when analyzing the factors that impact the long-term profitability of the agricultural industry. The value chain involves a set of activities, services, and products that lead to a product or service that reaches the final consumer or end user (Gloy, 2005; Paguia and Casuga, 2008). It identifies the actors in the chain, how they are linked to each other, who holds the influence in a chain (i.e., 'power') and how can actors in the chain gain more value and influence (Mponda et al., 2013). Agricultural value chain mainly

encompasses three main activities; namely: i) production/supply; ii) processing or manufacturing; and iii) marketing/ distribution and consumption. A re-defined generic agricultural value chain in Figure 1 above illustrates the different processes and actors in the agricultural value chain.

In the value chain, the production phase concentrates on how, where and when raw materials are procured and produced. In Tanzania, most producers are small-scale farmers, growers and raisers living in rural areas practicing subsistence farming. Traders, collectors or assemblers collect agricultural products from rural farmers and redistribute them to markets and firms in the marketing channel which converts raw materials to finished products. Usually these produces are transported to town markets (in districts, regions and cities) and for export markets. Traders may act as intermediaries between producers and assemblers, assemblers themselves, or intermediaries between producers and processors.

In the last phase (i.e. the marketing and distribution of the product by wholesalers and retailers to final consumers) wholesalers, exporters or importers purchase products (either *raw* or *processed*) from rural producers, initial processors or food manufacturers for distribution to retailers who are the ones directly involved in the sale of products or end-products to consumers. In many instances, traders again serve as intermediaries between producers/assemblers/processors and large distributors such as wholesalers/exporters/importers.

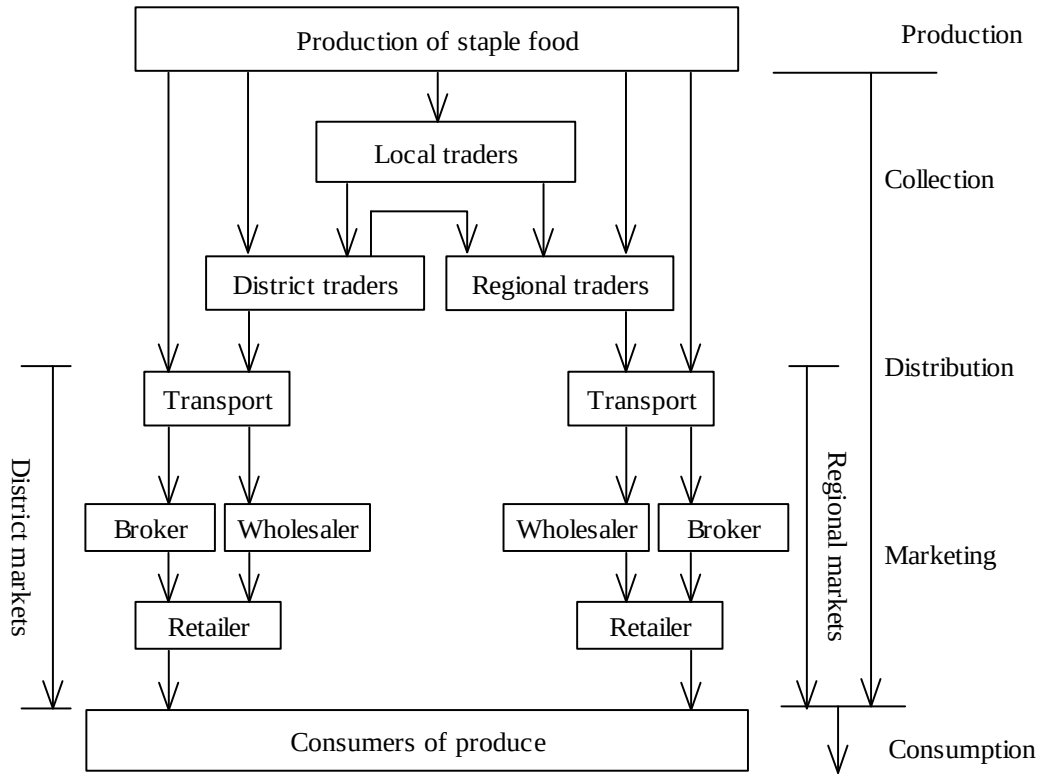

Figure 2 Supply Chain of Agricultural Products from Remote Areas to District and Regional Markets

The actors and transactions in the agricultural value chain, as well as the sequence of activities or processes, vary depending on the type of commodity being produced. For example, cereal produce like rice, maize and millet may either be consumed directly or processed to other final products and many traders are involved in their value chain. Production of cash crops like cotton, coffee and tobacco are controlled by monopsony cooperative union and are usually processed to other final products.

In developing countries like Tanzania, getting the products from the remote rural areas to final consumers in towns, big cities and even export markets, a number of traders and middlemen are required. These are required to facilitate and match the products with the potential buyers. Each market actor plays a unique role in trade facilitation and is also constrained by a unique set of impediments (Eskola, 2005). Trade is based on trust and inter-personal relationships. With the help of local traders and middlemen, larger traders and assemblers collect food produce from rural areas. These local traders and middlemen are key informants to large-scale traders and they have good business relationships. The collected produces are transported to town markets for sell to consumers and even processing to other final products. Other produces are exported to other countries. Figure 2 above depicts the supply chain of how staple food (e.g. rice, maize and banana) are collected from the producers and transported to either district or regional markets.

Figure 2 shows that producers can sell their produce to local traders or buyers coming from the districts or regions. In some cases, producers can transport the produce to either the district or the regional markets for sale. Local traders act as facilitators between the local producers and the many traders from the districts and the regions. Brokers are very important in transmitting some information about the price, quality, quantity, demand and availability of produce in the markets. In order to avoid doing business with unknown, traders have trust and personal relationship with brokers who help them to enter into business contracts. Brokers are usually paid a small commission for their jobs of matching produce with buyers. The brokers may sell the produce to wholesalers or directly to retailers. The same, wholesalers sell the produce directly to retailers at the markets. Usually, products are transported to markets. Once produces are at the local markets, consumers may purchase them for their home consumption.

Figure 2 above has detailed the movement of produce from the point of origin (i.e. production) to final consumers. The supply chain is long and it costs in terms of time and money. The chain is also costly as it involves a number of different actors and means of transport. This raises some questions whether the producers (i.e. farmers) benefit from their produce. A thorough study needs to explain why rural farmers are dependent on subsistence farming and that a few are able to transport their produce direct to the town markets.

Different scholars have assessed the problems and challenges of the long supply chain in Tanzania. Mponda et al. (2013) attributed it to low prices at farm gate, and the perception that the value chain is exploitative of farmers. Rogath and Mwidege (2014) argued that the movement of produce to markets involves high transaction costs and create asymmetric information. Further, markets are disorganized and there is high uncertainty arising from missing product markets (Rogath and Mwidege, 2014). Table 1 below summarizes the challenges that are encountered by the farmers in the three districts (i.e. Hai, Mvomero and Kilosa) visited during the study. The study also highlights the summarized discussion with government officials at the Ministry of Agriculture, Tanzania.

Table 1 Challenges in Accessing Market Information

Factor	Description of the challenges	Comments
Access to markets	- Varying and high transaction costs - Poor market infrastructure e.g. lack of storage facilities - High transaction costs - Poor rural roads connecting main roads - Carrying on heads, and use of cow-driven carts, bicycles, donkeys to transport produce to nearby markets	- Improve physical infrastructure (roads, railway etc.)
Access to market information	- Use of battery-powered radios, face-to-face interaction and mobile phone calling to get information - Few radio programs broadcasting market information - Broadcasted information not relevant to farmers - Lack of rural electrification - Unavailability of communication services in some rural areas - Lack of ICT infrastructure - Poverty, unaffordability to purchase and run communication devices (e.g. radio, mobile phones) - Lack awareness of the benefits embedded in ICTs - Lack of ICT know how	- Provide ICT connectivity in rural areas - Electrify rural areas - Improve awareness of ICT issues
Government	- Established good policies and strategies to manage agricultural market information - Acknowledges the importance of agricultural market information - Fail to prioritize it due to budget constraints and lack of funds - Encourages development partners and private sector to invest in provision of agricultural market information services	- Implement the policies - Provide enabling conditions like good roads, railways - Establish ICT infrastructure - Collaborate with development partners to provide market information

The challenges encountered by these rural farmers are supported by some literatures. Poor roads in Tanzania increases both transportation and transaction costs (Kawa and Kaitira, 2007) and as a result, food prices in urban centers are often double the prices received by farmers (Adam et al., 2012) and food quality deteriorates (URT, 2008). Mkenda and Campenhout (2011) estimated a transaction cost of about $15 per ton per 100 km for transport between major markets and noted that the biggest costs in Tanzania are between the farm-gate and the market which is about $13-

15.5 per ton. In general, poor transport sector in Tanzania contributes significantly to the high cost of domestic transport and creating a barrier to trade and additional protection to domestic producers of import competing goods (Kweka, 2006). Due to poor communication infrastructure and lack of access to agricultural market information, farmers receive unfair prices for their produce and are vulnerable to several risks, both during farming and transportation as well as marketing of their crops (Furuholt and Matotay, 2011). Lwoga (2010) attributed poor access to ICTs to lack of fund to acquire ICT facilities, expertise, electricity, and lack of awareness and skills on ICTs. As a result of lack of access to ICTs, farmers do not get location-specific, timely and accurate, and dynamic information which would help them to make informed decision when selling their produce (IFAD, 2003; URT, 2008).

To ensure rural producers get fair return of their produce and increase their incomes and reduce poverty, it is very important to improve the agricultural value chain. This improvement can lead to improved production of more produces and create employment to other actors in the chain like food manufactures and processors. Improvement in the agricultural value chain is accompanied with the good flow of information from markets to producers and vice-versa. Thus, this calls to pay much attention to agricultural market information. In order to access agricultural market information and markets in general, some questions need to explicitly be answered. These include identification of the actors in the supply chain, availability of markets and their variables like, information on produce availability and their variables like pricing structure, quantity, quality and volumes, means of collecting and dissemination important market information, rules and regulations involved in agricultural marketing, controls/management of the supply chain etc.

Assessment from Table 1 above shows that different stakeholders in the supply chain (Figure 1 and Figure 2) have a role to improve the market structure. Governments have roles in providing physical infrastructure like roads to ensure smooth flows of produce from rural areas to markets in town. The governments also are responsible in improving market infrastructure and setting up information media. Government is also responsible for setting rules and regulations for guiding agricultural marketing sector. Private sector may be responsible in transporting produce from rural areas to markets and to provide market information to other market participants.

3.2 Use of ICT in Accessing Agricultural Markets in Rural Tanzania

Use of information and communication technologies in rural areas of most developing countries including Tanzania is limited. The constraining factors include poverty, illiteracy, poor housing structure, lack of electricity, ICT connectivity and service unavailability, poor knowledge of the benefits embedded in ICTs etc. Due to this, rural citizens heavily depend on their fellows, relatives, village officials and executives, and government officers to get information. Mwakaje (2010) and Sanga et al. (2013) pointed out that a few have access to newspapers, radio and mobile phones. This may confirm that rural people still depend on face-to-face interaction and contacts to get information. As a result, they cannot get recent update information that are vital for their livelihoods and for making important decisions.

Rural farmers are yet to get trusted source of information as they expect information from any of their fellows. This has led the farmers to sit back and just wait for the markets to deliver high prices rather than pursuing greater efficiency. Though their current source of information (face-to-face interaction) is practical, they need another source, external, that can provide new, recent updated information. This calls for ICT as an intervention technology for providing agricultural market information to rural farmers and linking them to markets. ICTs have great potential for

empowering and strengthening isolated individuals like small producers in rural areas. ICT can allow rural citizens to abandon and transform their livelihoods and the way they do their businesses and integrate instead into the markets much faster than anyone could have supposed.

From Figure 1 and Figure 2 above, agricultural market information can be considered as all the information that is needed by producers and all actors in market chains to make these chains efficient and beneficial to all. For the agricultural producers this means what to grow and produce, when to grow, how to grow, where to grow, how to market, when to market, how to harvest and transport and where to get the inputs needed for production etc. This type of information can be categorized as:

- Information related to production and productivity such as availability and prices of inputs for farming such as seed, fertilizer, and pesticide, time of cultivation, yields, harvesting etc.
- Information related to marketing and distribution of produces such as forecasted price, production forecast in the local area, local processors and marketers, value adding, taxes, availability of transport and associated costs, transaction costs etc.
- Information related to consumers and consumption such as availability of markets for specific product, volume of consumers and produce, time of availability and delivery etc.
- Legal and Regulatory Framework to ensure fair play among stakeholders, increasing consumers' confidence, protecting farmers/consumers against health risks and maintaining food and food-related safety.

In developing countries, surprisingly consumers and traders are more equipped with agricultural market information and thus information flows from them to the producers. This flow opposes the flow of produce which is from the producers to the consumers. To make agriculture more market oriented, information on consumer preferences may help producers to make decisions about what to cultivate. Furthermore, linking consumer preferences information to farm input information becomes vital so as to make production profitable for producers.

Thus promotion of the use of ICT in providing information to rural community in Tanzania is important. This can be accompanied with a number of issues including providing electricity in rural areas, connecting rural areas with ICTs, promoting and providing training on the use of ICTs etc. Use of ICT can help rural citizens to create knowledge base agricultural activities and help them to access markets and market information.

4. DEVELOPING A FRAMEWORK FOR MARKET ACCESS

This study employs a pro-poor development approach; "the Making Markets work the Poor" (M4P) in designing the framework for accessing markets and market information. The M4P framework, mostly used by governments and agencies in private sector, was introduced in the late 1990s and focuses on developing market institutions that benefits the poor (Denison and Vidra, 2013). M4P is a framework that focuses on inclusive growth, or pro-poor growth i.e. M4P is "based on recent thinking about how to use market systems to meet the needs of the poor and how to support the private sector through market mechanisms that bring about sustainable change" (Denison and Vidra, 2013; DFID, 2005; Wildt et al., 2006).

M4P aims to enhance the poor's access to opportunities and their capacity to respond to opportunities within the economic mainstream, either as producers/entrepreneurs, workers or

consumers (Tschumi and Hagan, 2008). According to the literature (Wildt et al., 2006), M4P places great emphasis on understanding the system in which the poor are located, the root cause of constraints that they face (rather than the symptoms of the problem) and ways in which the system might be changed to benefit them.

M4P approach basically involves three basic steps outlined below (Ferrand et al., 2004; Tschumi and Hagan, 2008; Wildt et al., 2006): poverty reduction through market system development, developing a framework for understanding the market systems in which the poor exist and providing guidance for intervention practices. The M4P can leverage the market system by improving service delivery, change practices, roles and important market players and functions, and change attitudes of market players (Tschumi and Hagan, 2008). The M4P framework has been implemented successfully in some countries like South Africa, Nigeria, Jamaica, and Bangladesh (Denison and Vidra, 2013).

Using M4P approach, information and communication technologies emerge as an intervention mechanism that can facilitate access to markets and marketing information by rural farmers. The goal of intervention is to ensure that farmers benefit from their produces and thus encourages more investment in farm production. Also M4P acknowledges that access to markets and marketing information has a strong influence on poverty reduction (Jones, 2012). A framework consists of a set of standards, guidelines, policies and procedures which are implemented either manually, or where possible, automated through technology. A framework ensures data and information are managed in a secure, structured and consistent manner.

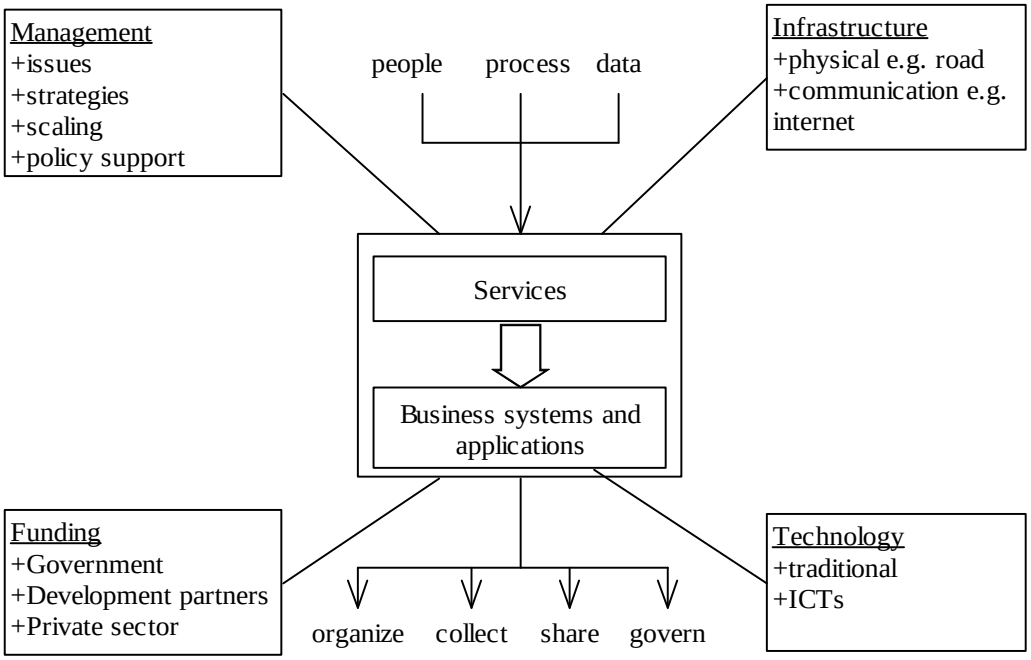

Figure 3 Building Blocks of Framework for Accessing Agricultural Market Information

Based on the above assessment and argument and from Table 1, Figure 1 and Figure 2, four components of the framework can be proposed namely management, technology, infrastructure and funding. Figure 3 above depicts a proposed framework for accessing agricultural market information. The management component in the framework specifies the issues that need

attention in facilitating access to agricultural market and agricultural market information. In doing so, the management component specify the strategies in tackling the issues, opportunity for up-scaling and supporting policies. The framework also shows the services provided by the business systems and applications that accept *inputs* and produce *outputs*.

In the proposed framework, details of the management component are shown in Figure 4 below. The strategies seek to transform the current situation of accessing agricultural markets and market information by unlocking the potentials of utilizing ICTs. Overall, this can be achieved by improving the physical infrastructure like railways, roads and establishing ICT connectivity in rural areas.

The service component (see Table 2 below) of the framework shows some of the services that can be provided by the business systems and applications. The output of the system depends upon the given input. The system is expected to collect, store, share, analyze, organize etc. the received data and information. Different people can use the services provided by the system like farmers, traders, policy makers, government officials etc.

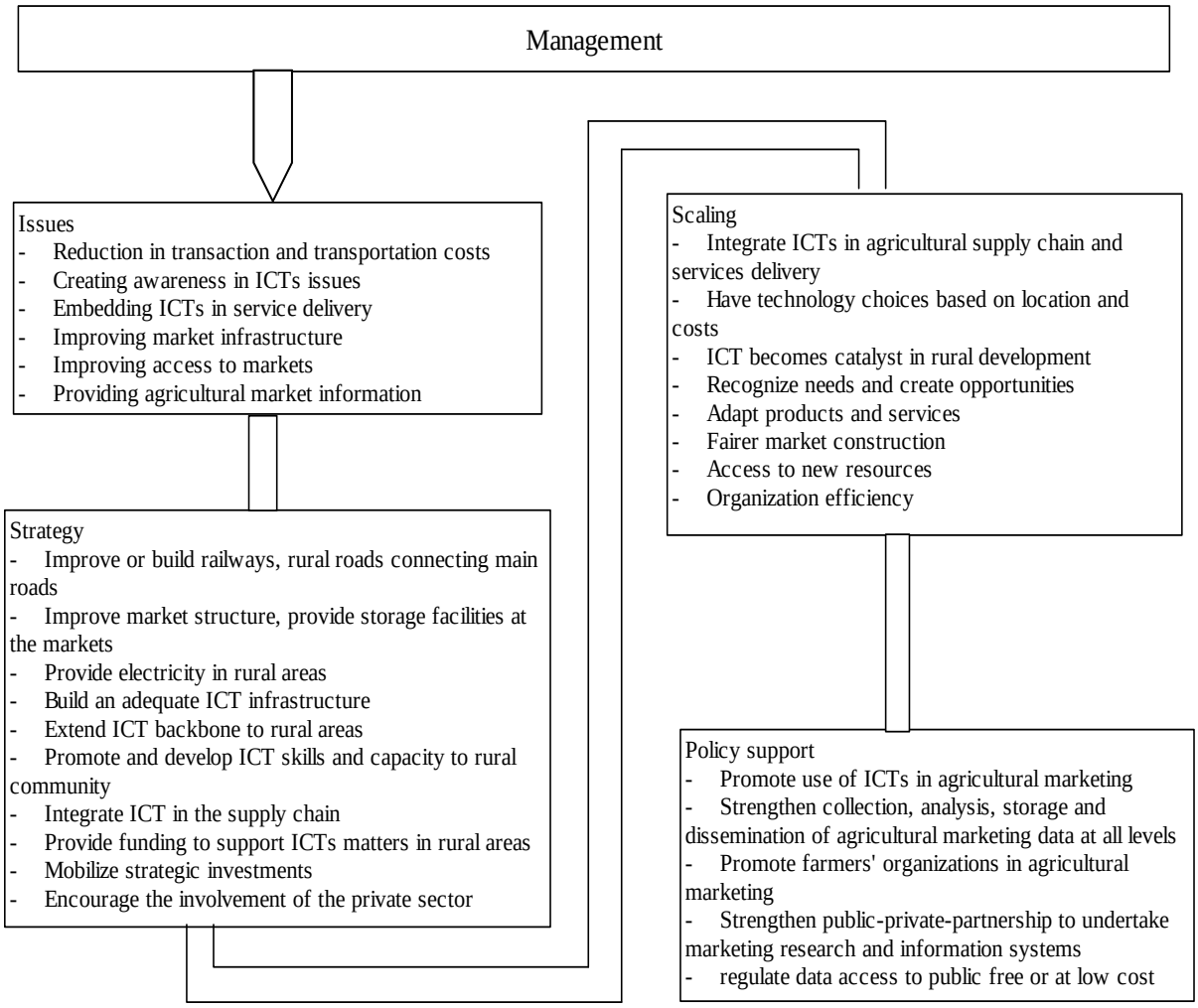

Figure 4 Details of Governance Component

Table 2 Service Component of the Framework

Market location	- region, district, ward, village
Product	- type, quantity, quality, unit of measure, price
Farmer	- region, district, ward, village - type of produce, volume/quantity, unit of measure, price
Trader	- region, district, ward, village - type of produce, volume/quantity - price
Access to market	- means of transport

4.1 Management

The M4P approach requires different actors in the market to play some roles. The management is charged with the overall functions to oversee the market information is provided to users and the service is sustainable. The service can be provided by the government, private sector or state in collaboration with the private sector. Usually the management provides supporting functions such as coordination, improving markets, market linkage and market infrastructure, creating awareness and providing information, developing required capacity and skills, and conducting researches related to market development.

The government as management part is charged with establishing rules and regulations to guide the marketing activities, improving physical infrastructure like roads, and ensures rural electrification.

The management has the role of ensuring the rural areas are connected with the ICT infrastructure (e.g. providing cellular towers, Internet, etc.). The management has also the responsibility of promoting the use of standardized measures (e.g. weights, quality grades) and ensuring contract engaged by market players are respected and enforced. Lastly, the government formulates and implements the policies to guide the agricultural marketing activities.

4.2 Infrastructure

Access to markets and agricultural markets to a great extent depends on both established physical and ICT infrastructure. Lack of rural roads leads to insufficient participation of rural community to agricultural marketing and also discourages traders to travel to rural areas to collect produce. Also, lack of communication facilities denies important information to both traders and producers which can help them to make marketing decision. Improvement in road infrastructure can significantly reduce both transport and transaction costs. Government, rural community and government partners can collaborate in improving infrastructure in rural areas.

4.3 Technology

Technology is very important in delivering market information to users. The advantage of using recent technology of ICT includes delivery of up-to-date information and providing analysis of the information for different purposes. Respondents were concerned with the means of delivering information to them. For example, they preferred to use battery-powered radios and mobile

phone due to their availability and accessibility. Respondents had concerns that radio programs are few and sometimes are not relevant as they are not targeted to them. Broadcasting time may be an issue as farmers may not available during to program time. Use of Internet seems to be limited due to absence of electrical power and lack of Internet infrastructure. This requires that when designing and implementing market information systems, it is very important to consider the technology that can be used to deliver information to recipients.

4.4 Funding

Access and use of agricultural market information may involve some costs. For example, radios broadcasting market information may decide to charge for such a service though recently they are broadcasting freely. For farmers to receive a package of market information intended to them (i.e. location specific for their produce), costs of collecting information and broadcasting or delivering is involved. Due to priorities and budget constraints, most African governments are yet to initiate the establishment of agricultural market information systems. Proving funds to assist in collecting, storing and disseminating agricultural market information may be relevant to rural communities. Funds may be provided by governments, development partners, NGOs etc. Funds may be used in training data collection staff, and establishing means of delivering information. Creating awareness, promoting the program and introduction of user fee are very important in ensuring its sustainability.

4.5 Inputs and Outputs

The overall goal of the framework is to transform the inputs to useful output. Users, processes and data are considered the inputs to the system. Users can be farmers, traders, retailers, government officials etc. Different users have different information needs depending on their activities. The output of the system may help users to organize, manage, maintain, and govern their activities.

5. USERS AND THE FRAMEWORK

To the small-scale producers, the M4P framework ensures that they have access to markets and that can overcome any form of market exclusion, can afford in making purchase, have good returns from selling their produce and labour, have choices, and risks are reduced in their agricultural marketing activities.

Linking farmers to markets and providing them with agricultural market information is anticipated with different benefits. Some of the benefits include greater interaction between farmers and traders, improvements in productivity, good returns from sales of produce, improvement in rural livelihood and emerging of strong institution representing farmers. Some benefits are provided by Tschumi and Hagan (2008) as outlined below:

- Improved delivery (such as increase in access or participation rates, improved quality or levels of satisfaction)
- Changes in practices, roles and performance of important system players and functions
- Changed attitudes of, and evident ownership by, market players
- Demonstrated dynamism of market players and functions (for example, responsiveness to changed conditions in the system)
- Independent and continuing activity in the system (i.e. the extent to which changes are maintained after direct intervention support has ceased)

6. RECOMMENDATIONS AND CONCLUSION

Different scholars (e.g. Torero, 2011; Wildt et al., 2006) acknowledge that access to markets and market information by rural farmers promotes the development of agricultural production. Scholars also agree that rural populations are deprived access to agricultural market information. As a result of this, rural farmers have a little bargaining power and are exploited by traders and gain a little when selling their produce. Due to poor remuneration from selling agricultural produces, small-scale farmers practice subsistence farming and they sell a little from their harvest.

To link small-scale rural farmers to markets and to ensure they benefit more from agricultural activities, a number of cross-cutting issues need to be addressed. To reduce both transaction and transport costs, it is essential that rural roads are connected to main roads and that are passable all times. Good rural roads ensure produce are transported easily and at low costs to town markets. Rural farmers can also decide to travel to town to find markets for their produce.

To ensure that rural farmers are equipped with market information, it is recommended that ICT infrastructure be extended to rural areas. A study by Mwakaje (2010) indicated that rural farmers failed to operate ICT devices (like TVs, radio, mobile phones) due to absence of power source i.e. electricity. The same study (Mwakaje, 2010) indicated that due to poverty and lack of money, rural people failed to meet communication costs like buying newspapers, mobile phones, failure to recharge their mobile phones and pay for telecenters. A few rural farmers were able to operate ICT devices especially computers and their related technologies (Mwakaje, 2010). Thus, it is essential to create awareness and promote use of ICT among rural citizens. This is accompanied with electrifying villages and providing ICT training to rural communities. Lowering communication cost can greatly encourage these rural people to purchase communication devices especially mobile phones and afford communication costs.

Poverty is also indicated to lack of access to other services like education. The education profile of majority of rural citizens is low compared to that from town. It is evident that an educated individual is likely to make good decision based on the environment as compared to uneducated one. Poverty and lack of education all diminish the bargaining power of the small-scale farmers.

Country's policies are also very important in ensuring that rural citizens are linked to markets and that have access to market information. If governments can implement policies, there is a possibility that agricultural producers can benefit more from their agricultural activities and that agriculture development can be promoted. In Tanzania for example, though the government encourages use of ICT in agricultural marketing and strengthening the dissemination of agricultural market information to intended recipients, it is yet to establish such a service (URT, 2008). Due to lack of marketing structures, poor linkages within the marketing, processing and production chains, poor market-orientation and inadequate processing facilities leading to high levels of produce wastage, the government policy clearly promise to develop key and strategic agricultural marketing infrastructure. If policies can be implemented, it is hoped that it can aid in linking producers to markets and promote agricultural production.

Value adding is an area that can benefit small holder producer. It can involve grading, sorting, cutting, packing in standard weights, and processing of produce (Mather, 2005). To some produce, value adding can be converting farm produce to finished consumable products like grinding cereals to flours. Lack of value adding and agro-processing are parts of missing markets

amongst smallholder farmers in marketing. Agricultural produce from smallholder farmers are usually poorly packaged. With few exceptions, most smallholder farmers cannot add value to their produce because they do not know its importance or lack processing technology (Louw et al., 2007). Inability to add value to agricultural produce by smallholder farmers excludes them from profitable markets.

Back to the proposed framework, it is evident that much to have be done to ensure rural farmers especially small-scale farmers are linked to markets and are equipped with up-to-date market information. It is also evident that having access to market information does not mean its usefulness. Rural farmers need to be trained on the importance and usefulness of agricultural market information. They also need to be trained to use new technologies like ICT. Creating information access points like telecenters in rural areas and increasing ownership of ICT equipment like TVs, radio, mobile phones etc. can have an effect in boosting and promoting usefulness of agricultural market information.

Lastly, all these are done to ensure agriculture creates wealth not just food. Agriculture creates more employment and benefits rural producers by yielding significant returns. Agriculture contributes greatly to national GDP and ensures national food security. Due to development in agriculture, rural producers may turn to modern agriculture practices.

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