

FACTORS IMPEDING INTERMEDIARIES' ROLE IN URBAN FRESH FRUITS AND VEGETABLES SUPPLY CHAIN IN DAR ES SALAAM, TANZANIA

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ABSTRACT

Despite the critical role played by intermediaries in supply chain and trade, along with various initiatives undertaken to enhance this role, fruits and vegetable traders in Dar es Salaam-Tanzania are still discontented with the intermediaries' inability to undertake supply chain roles. This paper examined the impediments to intermediaries' role in urban Fresh Fruits and Vegetables (FFVs) supply chain and recommended strategies for improving the same. Qualitative approach was adopted and data were drawn from a purposive sample of 92 respondents through interviews, focus group discussions and non-participant observation. Accordingly, intermediaries' role in urban FFVs supply was impeded by poor transportation, inadequate storage facilities, and inability to improve quality and poor marketing services. The study recommends some ways to alleviate the impediments. These include ensuring suitable road infrastructures and fighting corruption among various revenue and traffic police officers; insuring fruits and vegetables during transportation; installation and maintenance of storage facilities and ensuring adequate power supply and modern storage technology. Farmers and intermediaries should be sensitized on utilisation of storage facilities. The inability to value addition should be alleviated through improvement of packaging materials, sensitization of farmers and intermediaries on value and quality addition, introducing reliable storage facilities as well as effective enforcement of quality assurance and standards mechanisms. To improve marketing services, access to farmers should be guaranteed, farmers and intermediaries be sensitized on urban markets as well as ensuring effective and smooth exchange of marketing information among stakeholders. Therefore, impediments to Intermediaries' role in Urban FFV supply chain in Dar es Salaam can be overcome through improvement in transportation, storage, value addition and quality improvement as well as improving marketing services.

Keywords: *Intermediaries, Urban Fresh Fruits and Vegetables, Supply chain, Impediments*

1.0 Introduction and background

Urban fruits and vegetable trade is increasingly becoming common due to rapid urbanization that causes demand for food and need to alleviate income poverty and famine, especially among low-income groups worldwide (Pingali *et al.*, 2015; Hossain, 2013). This situation is evident in India, Pakistan, Latin America, South Africa, Ghana and Kenya where fruits and vegetables trade are undertaken in large extent (USAID, 2013; Sheoran A, 2015 ; Mahajan *et al.*, 2014). In Tanzania, about 30% of approximately 44 million people live in urban areas. Precisely, Dar es Salaam accounts for 40% of 22 million of urban population in Tanzania implying that the number of fruits and vegetables farmers and traders in the city is also significant (FAO, 2015; Moran, 2018; Schmidt, 2016).

Supply chain is an important aspect of trade. Specifically, urban fruits and vegetables' supply chain plays critical role in ensuring traders and farmers' livelihoods and food security for urban population (Addo *et al.*, 2015). Economically speaking, the fruits and vegetable supply chain in developing countries and Tanzania in particular is an essential livelihood activity for informal traders who constitute a significant urban population. Traders depend on selling fruits and vegetable as a main source of income to maintain their wellbeing and families (Dome & Prusty, 2017; Mkwela, 2013). As far as food security is concerned, urban fruits and vegetable supply chain ensures

availability of abundant and nutritious food, rich in vitamins, minerals, proteins, and carbohydrates needed by the majority of the urban population, for their nutrition (Lynch *et al.*, 2019). The trade guarantees daily availability of diverse types of fruits and vegetables; like banana, mangoes, watermelon, tomatoes, spinach, guavas, avocado and alike that are protective foods which assume great nutritional security role (Negi & Anand, 2015a; FAO, 2015).

Moreover, supply chain consists of all parties involved directly or indirectly in fulfilling request for goods or services. Supply chain includes all functions involved in receiving and filling the customers' request of products and/or services, including but not limited to new product development, marketing, operations, distribution, finance and customer services (Karim & Biswas, 2016). On the other hand, supply chain management refers to the set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses and stores so that products and/or services are produced as well as distributed to the right quantities, at the right locations, in a right time to the right quality so as to satisfy service level requirement to final consumers (Felea & Albăstroi, 2013; Deliya *et al.*, 2012; Wisner *et al.*, 2012)

On the other hand, the supply chain of fresh fruits and vegetables in the urban areas involves many intermediaries, who are responsible for complementing the function of making FFV available to the final consumers (Mwagike & Mdoe, 2015). These include agents, wholesalers, and retailers. The agent is an individual who collects goods directly from the farmer and sales them to the wholesaler. The wholesaler collects the FFV from the agents and sells them to the retailers. Finally, retailers collect goods from the wholesalers to the customers (Mazengo, 2014; Ferreira *et al.*, 2017).

Intermediaries form an important component of the urban fresh fruits and vegetable supply chain and trade in particular. Generally, intermediaries strive to make sure that the FFV is available at the ultimate customer in good condition through the use of their own means of transportation or outsourcing the services (Mwagike & Mdoe, 2015). The central function of the intermediaries is to absorb part of the risks, buyers and sellers face in the supply chain (Von Broembsen, 2012; Kumari & Singh, 2016). Intermediaries are particularly suited to reduce this uncertainty by bridging the gaps in the supply chain (Rao, 2008). Moreover, intermediaries play an important role of dissemination of information between all partners within the supply chain (Bidyasagar & Utpal, 2018; Mitchell, 2011).

They further play the role of facilitating transportation services. This includes providing and organizing appropriate means of transportation that serves to transfer the products from one place to another notably from farmers to the marketplace (Agrawal, 2018; Von Broembsen, 2012). They also facilitate storage services and facilities for the FFV products including provision of warehouses and cold facilities (Lehtinen *et al.*, 2016; Magesa *et al.*, 2014; Mwagike & Mdoe, 2015). Intermediaries provide market information to the parties involved in the supply chain as well as linking vegetable producers and consumers (Mazengo, 2014). They are responsible to facilitate FFV value addition and quality improvement by ensuring the required branding and packaging of the FFV products (Sharangi, 2019; S. Ali *et al.*, 2013). To this end, it is fair to conclude that, the role of intermediaries on business supply chain and particularly in fruits and vegetables trade is indispensable.

In Tanzania, a number of efforts have been undertaken to ensure effective role of intermediaries remarkably smooth supply chain of various goods and services including that of urban fresh fruits and vegetables. For example, the Ministry of Industry and Trade has facilitated industrial and trade developments through appropriate recommendations such as creating enabling legal framework. The ministry is also responsible for formulation, administration and review of policies and strategies for industrial and commercial development as well as creation of enabling environment for industrial and trade development (URT, 2010). Moreover, the Ministry of Regional Administration and Local Government of Tanzania is responsible for coordinating and supervising regional development management and administration including issues of trade and business (URT, 2010). Above all, there are a number of relevant trade and agricultural policies in Tanzania such as the Trade Act, National Strategy for Growth and Poverty Reduction I & II, Agricultural Development Policy and SMEs policy for the purpose of overseeing trade in general and the fruits and vegetable trade in particular (URT, 2005). The National Strategy for Growth and Poverty Reduction II is among the initiatives intended to improve transportation infrastructure with the aim to minimize the transportation cost and increase the speed of delivery of the product to the markets and improve the storage facilities, and intermediaries' access to loan to help them acquire capital. On the other side of the coin, the

national horticulture policy addresses challenges facing the horticultural industry in Tanzania such as hindrances associated with horticultural development in Tanzania (HODECT, 2011; 2012).

Other issues pertaining intermediaries and business are covered in the National Small and Medium Enterprises (SMEs) development policy (Sama, 2011). The policy addresses constraints which affect the performance of intermediaries, such as insufficient working premises, limited access to finance, lack of business training, marketing, poor technology development and information, high transportation and logistics costs, high inventory levels, poor infrastructure and alike (UNIDO, 2012; Ali *et al.*, 2017; Sama, 2011).

Unfortunately, despite the importance attached to the intermediaries in the whole process of supply chain and the initiatives made by the various stakeholders in supporting the same, the role of intermediaries in supply chain of fresh fruits and vegetables in Africa and Tanzania in particular is highly discontented with some traders viewing intermediaries as social parasites rather than business facilitators in fresh fruits and vegetables supply chain (Mwagike & Mdoe, 2015; Serem, 2010). This may have far reaching negative effects on the fruits and vegetables supply chain and on the traders' livelihood in particular, given that majority of the traders depend on the fresh fruits and vegetable trade and supply chain as their sole livelihood activity. In Tanzania, intermediaries have been unsuccessful in adding value to fruits and vegetable supply chain (Mwagike & Mdoe, 2015). Vegetable and fruits intermediaries in Tanzania have diverged from their established role of adding value to the supply chain to that of exploitation and oppression of traders (Mwagike & Mdoe, 2015; Deliya *et al.*, 2012)

Consequently, intermediaries' failure to play their supply chain roles has led to a number of challenges to the urban fruits and vegetables trade and traders in particular including but not limited to unfair pricing and less profitability to traders, inadequate storage facilities, poor infrastructural issues, packaging issues, technological issues, quality and safety issues, processing issues to mention just a few. This is very unfortunate because most of the vegetable and fruits are perishable in nature and have very short shelf life which requires proper handling and appropriate storage facilities to ensure that they are in good condition when ultimately available to the final customer (Negi & Anand, 2016; Agarwal, 2017; Balai *et al.*, 2018).

Moreover, some traders feel exploited when they compare farm prices and the prices at which the products are delivered to them by intermediaries at wholesale price (BASCAP, 2015; Mchenga & Abubakar, 2016; Serem, 2010). Although the intermediaries provide facilities like means of transportation, storage facilities, financial as well as packing materials, most farmers are not satisfied with their role and just see them as jeopardizing their income and thus their source of poor standards of living. This further suggests that intermediaries are incapable of performing their role.

From the foregoing sections we have noted that principally, intermediaries play a critical role in the supply chain of any product and that of fresh fruits and vegetables in particular. Intermediaries involvement in vegetable and fruits supply chain has a remarkable impact on traders' livelihood. However, despite the critical role played by the intermediaries in business supply chain, the same has not been reflected among the intermediaries and traders involved in urban fresh fruits and vegetables in the urban setting of Tanzania and Dar es Salaam city in particular (Schmidt, 2016). For example, some traders still display the products on the floor at the market places. In most cases, the markets lack required facilities that may protect the fruits and vegetables from deterioration. They lack cold storage and handling facilities which are the root cause for the "after harvest loss" which is one of the biggest challenges facing FFV business in most of the developing countries (Mwagike & Mdoe, 2015). Consequently, the overall objective of this research is to examine impediments to intermediaries' role in fresh fruits and vegetable supply chain and recommend measures to improve the situation.

1.2 Problem Statement

Urban fruits and vegetables' supply chain plays a critical role in ensuring traders and farmers' livelihood, food security for urban population in the urban setting, and above all contributes to the national economy (Karim & Biswas, 2016). Intermediaries form an important component of the urban food and vegetable supply chain and trade in particular including linking vegetable producers and consumers, adding value to the produces, and provide market

information to the parties involved in the supply chain by means of transportation, location to consumers, production, planning and the information flow (Mwagike & Mdoe, 2015;K. Kalidas *et al.*, 2014).

Owing to the critical role played by intermediaries in urban fresh fruits and vegetables supply chain, the government of Tanzania and other stakeholders have made tireless efforts to reverse the above presented situation. The Ministry of Trade has reviewed trade policies and strategies for industrial and commercial development as well as creation of enabling environment for industrial and trade development (URT, 2010). Moreover, the Ministry of Regional Administration and Local Government of Tanzania has coordinated and supervised regional development management and administration including issues of trade and business (URT, 2010). Above all, a number of agricultural laws and policies have been formulated for the purpose of overseeing trade, including the fruits and vegetable supply chain as evidenced by presence of trade Act, The National Strategy for Growth and Poverty Reduction I & II, Agricultural development policy as well as SMEs policy.

Unfortunately, despite the crucial role played by the intermediaries in fresh fruits and vegetables supply chain as well as the efforts by the stakeholders to enhance it in Africa and Tanzania in particular, still this role is highly discontented by various categories. For example, intermediaries have been viewed as social parasites in the context of fruits and vegetable supply chain rather than business facilitators (Mwagike 2015; Serem, 2010; Mkwela, 2013).

Moreover, various studies have been undertaken regarding the role of intermediaries on supply chain of fresh fruits and vegetables; but mainly focused on the farmers (producers) specifically in rural areas but not in urban setting (Veena *et al.*, 2011;Oguoma *et al.*, 2011;Sihariya *et al.*,2013;Mwakige & Mdoe, 2015; Dome & Prustry 2016; Mchenga & Abubakar, 2016). Furthermore, these studies have not adequately demonstrated the extent to which the role of intermediaries in urban fresh vegetables and the impediments to these roles. Owing to the above problematic situation, in this work we examine impediments to intermediaries' role to supply chain of fruits and vegetable and recommended strategies for improving the intermediaries' role in urban fresh fruits and vegetable supply chain. The paper makes several contributions through providing relevant policy advocacy material for fruits and vegetable stakeholders as well as facilitating policy makers to more strategically invest in the development of fruits and fresh vegetables supply chain since it is among the crucial areas in employment provision. Secondly, it also contributes to the knowledge base for research in the field of urban fruits and vegetable supply chain.

1.3 Study objectives

The objective of this paper is to assess the intermediaries 'role in urban fresh fruits and vegetable supply chain in a bid to recommend strategies for improving the intermediaries' role in urban fresh fruits and vegetable supply chain in Dar es Salaam Tanzania. Specifically, the paper examined impediments to intermediary's role to supply chain of fruits and vegetable and recommended strategies for improving the intermediaries' role in urban fresh fruits and vegetable supply chain

2.0 Literature review

2.1 Impediments to transportation service for fresh fruits and vegetables;

Literature shows that, increasingly intermediaries are incapable of successfully undertaking the supply chain role due a number of aspects. Firstly, transportation is hampered by poor transport infrastructure which makes it difficult to more conveniently transfer fresh fruits and vegetables products from one point to another (Sharma & Singh, 2011;Negi & Anand, 2015b;Magesa *et al.*, 2014;Bahinipati, 2014).

Transportation problem is exasperated by rains that make roads less passable and nearly impossible for fresh fruits and vegetable to reach the final consumers timely (Mwagike & Mdoe, 2015). Poor road infrastructure is further caused by geographical factors such as heavy rains and topography considering the fact that most of the fruits and vegetables cultivating areas are found in rural areas that are mainly hilly and characterized by heavy rains (Kiaya, 2014).

Moreover, farmers and traders have been found to be located geographically far away from each other as well as from urban areas and they produce small quantities of fresh produce in numerous small farms. This makes it difficult for the intermediaries to reach them timely when collecting the fruits and vegetables for the purpose of transporting

them to urban areas (Mwagike & Mdoe, 2015). Also transportation is hampered by lack of adequate facilities for loading and offloading, whereas most intermediaries use free hand to load and offload the fresh fruits and vegetables (Wakholi *et al.*, 2015; Verma *et al.*, 2019). Again transportation issue is characterized by absence of adequate storage facilities specifically cold temperature facilities meaning that the traders are faced with substantial losses in their fresh fruits and vegetables when transporting them to urban areas (Sharma & Singh, 2011; Negi & Anand, 2016a). Likewise it can be attributed to the use of unsuitable packaging containers from the farms to urban areas (Kitinoja & AlHassan, 2012).

Another aspect that deters effective transportation of fresh fruits and vegetables is corruption and bribery. Intermediaries complain that revenue and traffic police officers stop the cargo vehicles unnecessarily and sometimes they are required to pay unfair charges and bribes in order to continue with the journey (Makochekanwa, 2014)

2.2 Impediments to intermediaries' role in storage services

Literature provides a number of factors that impede the intermediaries from facilitating this critical role of ensuring effective storage services for fruits and vegetables. This is firstly caused by inadequate or unreliable power supply to support storage services. Irregular power supply leads to the deterioration of fresh produce while still under custodianship of intermediaries before reaching to the traders (Shukla & Jharkharia, 2013). Another impediment is lack of modern technology on storage of fruits and vegetables storage: Intermediaries are not conversant with modern storage technology when it comes to storage facilities. Due to the limited technology in storage, there are no storage places and facilities that can ensure low temperature necessary for preservation of fruits and vegetables (Sheoran A, 2015). Consequently, the produce is handled roughly and transported in less recommendable means such as open trucks (Mgonja & Utou, 2017; Verma *et al.*, 2019). Generally, appropriate transport technology designed for transporting fresh fruits and vegetables both from up country to urban areas and within the urban areas is scarce and becomes a great hinderance.

Indeed, Shakeel-Ul-Rehman *et al.* (2012); Mgonja and Utou (2017) observed that owing to poor technology most of the farmers picked their crops in the morning, packed them in the wooden crates and transported them in open trucks [pickups] as a dominant mode of transportation of the produce to the outside market. Road transport has been the major means used in supply chain of fruits and vegetables even when railways and airways are required to save time and airways (Negi, 2015; Negi & Anand, 2016; Mgonja & Utou, 2017).

Moreover, Intermediaries are confronted with the challenge of inadequate knowledge and awareness on storage facilities. The experience shows that due to poor knowledge and awareness on value addition, intermediaries end up using traditional packages of fruits and vegetable including equipment like bamboo baskets, polyethylene sacks, woven sacks, woven bamboo baskets, wooden crates and plastic bags (Mgonja & Utou, 2017; Reddy *et al.*, (2010); Negi & Anand, 2015b)

Another impediment is inadequate policies on storage of fresh fruits and vegetables and poor enforcement of existing policies. There are hardly specific policies, rules and regulations when it comes to issues of fruits and vegetable storage among intermediaries and business people. Consequently, enforcement on the use of proper storage facilities for fresh fruits and vegetables becomes almost impossible (Sheoran A, 2015). Because of non-existing policies and regulations, there are no quality standards for fresh fruits and vegetables which further complicates the proper enforcement of storage facilities for fresh fruits and vegetables. Moreover, there are hardly central urban stores where fresh fruits and vegetables can be safely stored (Mahajan *et al.*, 2014). This forces the intermediaries to continue depending on the inappropriate storage and handling equipment (Mgonja & Utou, 2017). Another factor is inadequate technology of harvesting fresh fruits and vegetables which if not properly handled may led to significant post-harvest losses in fresh vegetables at farm level (Shukla & Jharkharia, 2013; Karim & Biswas, 2016; Meyer *et al.*, 2017)

2.3 Impediments to intermediaries' role in Value Addition and Quality;

A number of factors impede value addition and quality improvement for fruits and vegetables. One of the factors is the limited financial capital by the intermediaries to buy packaging materials (cost of packaging) as noted in most of the developing countries (Hernández-Rubio *et al.*, 2018; Sharma & Singh, 2011). This renders a number of intermediaries incapable of making use of the packaging material. This makes intermediaries recourse to less quality package materials. Related to this, is lack of knowledge and awareness on use of quality packaging material which forces the intermediaries opt for less appropriate packaging material mainly traditional and worn out packaging materials (Mwagike & Mdoe, 2015; Mgonja & Utou, 2017).

In the same manner, lack of or inadequate skills related to value addition and quality improvement by the intermediaries which includes technology related to sorting and grading hamper the role of intermediaries (Sheoran A, 2015; Kumar, 2016). Also, Reddy *et al.*, (2010) note that although farmers undertake sorting and grading by themselves, they have very little knowledge about this process because they lack necessary skills for doing so. On the same aspect, Plazibat *et al.* (2016) ; Karim and Biswas (2016) also found that farmers and intermediaries were handling fresh produces with less care and sensitivity leading to bruising, thereby resulting in splitting and skin breaks in the fresh produce. All these can be attributed to lack of or inadequate financial capital which impede intermediaries to invest in value addition and quality improvement (Agrawal, 2018; Kumar, 2016). Further, lack of or inadequate financial capacity makes it difficult for intermediaries to assume any risks facing the goods for instance, theft, perishability and other potential hazards (Sheoran A, 2015; Mwagike & Mdoe, 2015; Haldar, 2018). In the similar trend, intermediaries are incapable of facilitating value addition and quality improvement due to lack of knowledge and awareness about these matters (Sharma & Singh, 2011; Mgonja & Utou, 2017). Closely related to this is lack of quality assurance regulatory boards and the poor enforcement of the existing quality assurance and standard mechanism. Regulatory institutions responsible for quality addition for fresh fruits and vegetables are not well known to intermediaries and the few existing ones are hardly properly enforced (Wakholi *et al.*, 2015)

2.4 Factors impeding intermediaries in provision marketing services

Several reasons are responsible for the intermediary's inability to effectively facilitate the marketing information sharing for the fresh fruits and vegetables (Negi & Anand, 2015). One of the reasons is associated with the remote location of farmers whereby many farms are located in relatively isolated areas or far away from improved main roads something that makes it difficult for them to access market information (Mwagike & Mdoe, 2015).

Moreover, inadequate knowledge, skills and experience by farmers contribute to this state of affairs (Negi & Anand, 2016b; Karim & Biswas, 2016).

2.5 Conceptual framework

The problem at hand concerns the intermediaries inability to undertake supply chain roles in urban fresh fruits and vegetables including inability to support transportation (Verma *et al.*, 2019; Mgonja & Utou, 2017), provide storage services (Addo *et al.*, 2015; Negi & Anand, 2015b), support value and quality improvement (Moran, 2018; Olayemi *et al.*, 2011) as well as provision of relevant marketing services (Mwagike & Mdoe, 2015; Karim & Biswas, 2016). This is despite the dire need for this service in urban areas. In order to realize the improved intermediary's role in supply chain of fresh fruits and vegetables in urban areas, it is imperative to examine factors impeding intermediaries' role in supply chain of fresh fruits and vegetables in urban areas. It is expected that the information emanating from this assessment can be relied upon to improve intermediary's role in supply chain in urban fresh fruits and vegetables.

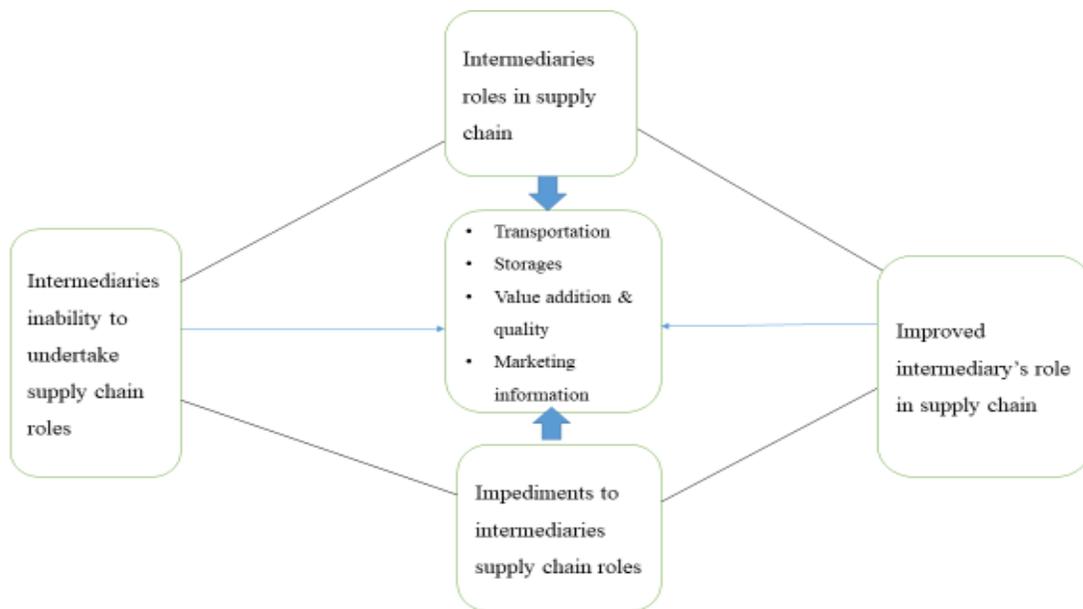


Figure 2.1 Conceptual Frame work

3.0 Research Methodology

This study was conducted in Dar es Salaam City and concentrated in Kariakoo, Kigamboni and Temeke Stereo markets where fresh fruits and vegetables trade is undertaken in much greater volumes compared to other parts of the city. Also, these are among the main public markets in which the intermediaries, traders and sometimes farmers can be easily found. Dar es Salaam is the largest city in Tanzania that borders the Indian Ocean on the East and the Coast Region on the other sides. It is comprised of four Municipal Councils, namely Kinondoni, Ilala, Temeke, Ubungo and Kigamboni. The region had a population of 4,364,541 as of the official 2012 census (Mof, 2013). Fresh fruits and vegetables business is undertaken across all Dar es Salaam municipalities (Schmidt, 2016; Mkwela, 2013).

This study employed a qualitative design owing to the sensitive nature of study and its ability to explore, explain, discover and understand the role of intermediaries and the challenges they face in executing them. The design made it possible to capture feelings, perceptions, attitudes, values, beliefs and experiences of various groups that were interviewed as formerly suggested by qualitative research experts (Astalin, 2013; Spinks & Canhoto, 2015). Purposive sampling was employed considering the respondents experience and their ability to provide relevant information. The study employed a sample size of 92 represented who included traders, farmers, market officials, customers, and intermediaries of urban fresh fruits and vegetables from Kariakoo, Kigamboni and Temeke stereo markets in Dar es Salaam.

Methods of data collection included document review, in-depth interviews with 92 intermediaries as well as 6 Focus Group Discussion (FGD). The interviews lasted between 20 and 30 minutes. This was in order not to disturb the respondent's business time. The six groups consisted of 5-10 participants of men and women aged 20–56 years. The FGD sessions were moderated by the two researchers, one played the role of chairperson and the other one a recorder. Some of the document reviewed by researchers include former relevant research reports, newspapers, magazines, blog and website pages. Others were government policies and regulations, The National Strategy for Growth and Poverty Reduction I & II, Trade Act, License Act as well as horticultural reports. Moreover, in-depth interviews were conducted with around 92 respondents including, the intermediaries, farmers, market officials, customers and traders. This method was particularly relevant given that it facilitated rapport building. It also enabled the researcher to re-structure the interview guide and questions as well as modify the repeated questions based on the respondents' knowledge, ideas, views and perceptions (Mikkelsen 2005). The interviews facilitated interaction between researchers and respondents given that some of the traders could not read and write. Moreover, some of the respondents were in hurry in such a manner that they were not ready to fill in a questionnaire.

Focus Group Discussion (FGD) comprised of 5 to 10 respondents and it helped to capture perceptions, opinions, beliefs, and attitudes of the intermediaries towards the role of intermediaries. It also provided checks and balance of the information adding to the reliability and validity of the data. Owing to the qualitative approach applied in this study, the researcher employed content analysis strategy to summarize, arrange, organize, interpret, analysis, and present the findings in relation to the main and specific objectives of the study. The reports were generated based on the two research objectives. Both qualitative and quantitative data analysis was facilitated using MAXQDA 10 [VERBI Software, Marburg, Germany]. Data was grouped accordingly; codes were generated, leading to categories and themes.

4.0 Findings and Discussion

Findings show that a number of factors were responsible for constraining intermediaries' role in urban fresh fruits and vegetable supply chain. These factors were associated with (1) selection of transportation (2) provision of storage facilities and services (3) value addition and quality improvement as well as (4) marketing services. This is in response to the foregoing chapter which shows that increasingly intermediaries are incapable of successfully playing their role in urban fresh fruits and vegetable supply chain.

4.1 Impediments to intermediaries' role in transportation

Findings show that in playing transportation role, intermediaries were impeded by poor road network and infrastructures as attested by 85% of the respondents, who affirmed that dilapidated and less passable roads more especially in the fruits and vegetable cultivating areas made it less convenient for the intermediaries to transport the commodities to urban market places. In these areas roads were non-tarmacked and were characterized by poor bridges. Closely related to this, was the traffic jam that resulted from too narrow roads, lack of alternative roads and fly overs in the city centres and outskirts of Dar es Salaam. This made it difficult if not impossible for the vehicles carrying fruits and vegetable to move faster enough. A significant number of respondents complained that when they arrived at various outskirts of Dar es Salaam for example at Kibaha, Tegegeta, Mbagala and Gongo la Mboto it was always hard for them to penetrate to the city centre due to congestion as attested by one of the respondents below:

There is too much traffic congestion along the Morogoro road which leads to long time to deliver the product. I mean that once we approach Dar es Salaam vehicles start moving slowly due to too much traffic jam there. So we end up arriving very late. At times we're compelled to arrive at night when the traders are not around. (Male Intermediary (24), Kigamboni Market)

The transportation challenge is further complicated by the geographical nature of the cultivating areas as attested by around 41% of the respondents who complained that the cultivating areas were located in the hilly and valley areas. These areas were often characterized by heavy rainfall which made it difficult for intermediaries to collect and transport the fruits and vegetables from those areas as further confirmed by one respondents below:

In some of the places where we collect fruits and vegetables like Lushoto and Handeni Districts in Tanga Region, are characterized by very slippery roads more especially during rain seasons. Unfortunately, these places are hilly and always wet. Therefore, transportation of fruits and vegetables is always difficult there. This same situation also applies to Ilula District in Iringa region. (Male Intermediary (40), Kigamboni Market)

Another factor that impeded transportation role was technology as evidenced by 75% of the respondents. It was stated that due to poor technology, loading and offloading of fruits and vegetables was done manually thus taking considerably much time. Also tracks were not equipped with modern storage facilities such as freezers and refrigerators, thus forcing the intermediaries to use poor devices such as wooden-box, wooden crates, rolled-cages and plastics cages which resulted to poor handling when transporting the fruits and vegetables as confirmed by one of the respondents below:

Sometime our transporters use Lorries to transport fruits and vegetables. This is improper because they lorries do not have advanced loading and offloading tools as well as storage equipment. In this case transporters and workers in the lorries use free hands to offload and load the fruits at market places without considering the nature of fruits and vegetables like mangoes and water melon, or other kinds fruits that can easily get spoiled. (Male Respondent (32), Kigamboni Market)



Fig 4.1: Lack of modern handling and storage tools for FFV (Photo: Issa, I.M, 2019)

Transportation of fruits and vegetables was further complicated by corruption practices by the revenue and traffic police officers as attested by 60% of the respondents. Respondents stated that, while on their ways to Dar es Salaam, vehicle drivers were stopped several times and be required to pay unjustifiable charges or bribery. This delayed delivery time for fruits and vegetables in urban areas. Moreover, it was noted that most of the intermediaries did not insure fruits and vegetables while transporting them as evidenced by around 41% of respondents. Insurance cover could help guarantee compensation of fruits and vegetables against any kind of damages and delays specifically if accident occurred when transporting them.

Table 4.1: Summary Impediments to Transportation

Nature of impediment to transportation	Frequency in %
Poor road connectivity and network	85
Poor transport technological challenges	75
Corruption and bribery	60
Geographical factors	41
Lack of transport insurance cover	41

Source: Field data 2019

Therefore, it can be concluded that role of intermediaries in transportation of fresh fruits and vegetables was impeded by poor road connectivity and network, poor transport technology, corruption practices, geographical factors as well as the failure to insure the fruits and vegetables while transporting them as summarised above. However poor road connectivity and network, poor transport technological challenges, corruption and bribery seem to be the leading factors.

Most of these transportation impediments notably poor road connectivity and network, poor transport technology, corruptive practices and geographical factors seem to correspond well with some of the existing literature as formerly ascertained in various parts of Africa and Asia (Mwagike & Mdoe, 2015; Negi, 2015; Negi & Anand, 2016b; Makochekanwa 2014; Sharma & Singh, 2011; Shukla & Jharkharia, 2013). Specifically, the authors stated that when transporting FFVs, handling, loading and offloading were done manually due to absent of well-equipped vehicles. This is to say that vehicles did not have facilities such as freezers and refrigerators, thus forcing the intermediaries and farmers to use improper storage facilities such as wooden-box, wooden crates, rolled- cages and plastics cages. However, the impediment related to lack of insurance cover, seem to have been rarely captured in literature; may be because it is relatively unique among the intermediaries in Tanzania owing to the risky nature of transportation as discussed in some of the foregoing sections.

4.2 Impediments to intermediaries' role in storage services;

It was found that the commonest factor impeding intermediaries function to storage services was lack of central fruits and vegetable storage facilities in urban areas as attested by around 90% of the respondents. Consequently, intermediaries were compelled to use traditional and less efficient storage alternatives such as wooden crates, wooden box, bamboo baskets and plastics owing to the apparent lack of central storage rooms for each kind of fruits and vegetable, absent of handling devices at the markets such as pallets, handling trucks, conveyors and lifts. This consequently resulted to huge losses of fruits and vegetables as they decayed at the market places. One respondents noted:

We bought our produces in tones of packages from regions, but after reaching at the market, we are only able to store in one place because there are no storages places. Also some of them are temporary storage particularly for tomatoes and potatoes. The following day we find that tomatoes are rotten so we have to sort out and throw away the bad ones. This causes huge losses (Male trader (26), Kigamboni market).

Another respondent gives a testimony by saying

During the tenure of our first President [Mr. J.K Nyerere], there used to be adequate cold rooms here at Kariakoo Market. Traders could store fruits and vegetables effectively. People who visited Dar es Salaam during this time were impressed to visit this market because of its beauty. However, after this time we have been witnessing serious shortages of these storage rooms. Some are dilapidated beyond repair. (Male Trader (46), Kariakoo Market)



Fig 4.2: Traditional storage for FFVs at the market. (Photos: Ibrahim. I, 2019)

Another factor impeding intermediaries from successfully facilitating storage services was inadequate and unreliable power supply as evidenced by over 88% of respondents. Moreover, intermediaries' role to storage was impeded by inadequate knowledge and awareness on storage facilities as evidenced by 79% of the respondents. Intermediaries used less modern storage facilities such as bamboo baskets, basket-net, bags, wooden boxes and crates due to lack of knowledge and awareness about the same and that they needed to be sensitised on these issues. They also kept fruits and vegetables on the floor or tables and cover them with dirty canvass or pieces of cloth. They further stated that

there were neither government nor private institutions that sensitized them on the issues of good storage facilities as well as inspection of fruits and vegetables storages at markets.

Table 4.2: Summary Impediments to storage facilities/services

Nature of impediments to storage facilities / services	Frequency in %
Lack of storage facilities in urban areas	90
Unreliable power supply	88
Lack of modern storage technology	88
Inadequate knowledge and awareness on storage facilities	79

Source: Field data 2019

Concluding from the above table, it can be said that, intermediaries' role to storage services was impeded by lack of storage facilities in urban areas, unreliable power supply, lack of modern storage technology as well as inadequate knowledge and awareness on storage facilities. These factors had been ascertained among the intermediaries in various parts of Tanzania (Mgonja & Utou, 2017; Mwangike & Mdoe 2015) and in India (Sheoran A, 2015; Negi & Anand 2015 and 2016; Shukla & Jharkharia 2013). However, an interesting aspect of this discussion was related to the poor packaging facilities, lack of modern storage devices for fruits and vegetables storage as well as lack of government policies and consumer awareness to reduce post-harvest waste. This suggests that the current study complements well the existing literature and theories about this particular subject matter.

4.3 Impediments to value addition and quality improvement for FFV

Findings for this particular role, ascertained that one of the impediments to value addition and quality improvement for fruits and vegetables by the intermediaries was limited financial capital to buy packaging and labelling material as confirmed by around 64% of the respondents. They emphasized that their financial capital could not allow them to buy and use modern fruits and vegetable packaging facilities; thus resorting to traditional ones such as wooden-box, sacks, baskets, bags; as well as storage tools such as rolled-cage, pallets and tables. This consequently, deteriorated and damaged the quality of fruits and vegetables because they easily got rotten before reaching the market places. This role was further impeded by inadequate knowledge and awareness on value and quality addition of fruits and vegetables as reported by about 72% respondents. They stated that they did not understand the importance of appropriate packaging and labelling or even hardly did they have the knowledge to identify appropriate packaging and labelling materials. This is to say that, farmers lacked necessary skills for ensuring quality before, during and after harvesting partly because there were no extension officers and other experts who would advise them. Farmers and intermediaries lacked the modern farming methods as well as sufficient modern farming inputs supplies notably fertilizers, handling methods which made intermediaries resort to the traditional packaging materials such as woven sacks, woven bamboo baskets, wooden box, basket-net etc



Fig 4.3: Traditional packaging facilities and labeling for fruits and vegetables

Closely related to the above is the absence of storage facilities in the fruits and vegetable trucks as confirmed by over 58% of the respondents. This included lack of facilities such as compatible cold storage and handling tools that could improve the quality of fruits and vegetables to minimize their breakage, deterioration and decaying while inside the

vehicles. Moreover, poor enforcement of quality assurance and standards in the cultivating areas was also a challenge that jeopardized value and quality of fruits and vegetables as confirmed by around 62% of respondents. As a follow up on this matter, it was noted that the existing relevant foods regulatory bodies such as TBS and TFDA mostly operated their functions at industrial levels but could not go down to the farming levels.

Table 4.3: Summary of Impediments to value addition & quality for FFV

Nature of impediments value addition quality improvement	Frequency in %
Limited financial capital to buy packaging materials	64
Inadequate knowledge and awareness on value and quality addition	72
Lack of storage facilities in the fruits and vegetable tracks	58
Poor enforcement of quality assurance and standards	62

Source: field data 2019

Drawing from the above table it is clear that impediments to value addition and quality improvement for fresh fruits and vegetables include, limited financial capital to buy packaging materials, inadequate knowledge and awareness on value and quality addition, lack of storage facilities in the fruits and vegetable tracks, poor enforcement of quality assurance and standards. These particular impediments correspond well with some former works notably in various parts of East Africa Tanzania inclusive (Mwagike & Mdoe, 2015; Mgonja and Utou 2017; Wakholi et al 2015), India (Sharma & Singh 2011; Negi & Anand 2014; 2015; 2016; Balai et al., 2018; Agarwal, 2017b; Shukla & Jharkharia, 2013). However, an interesting part of this discussion relates to the absent of modern farming methods/practices, insufficient of modern cultivating tools such as chemical fertilizers, improper handling methods for fruits and vegetables that could create value and quality for fruits and vegetables. On the other hand, the impediment relating to lack of storage facilities in the fruits and vegetables trucks has not been stated in the reviewed works. This could be among the unique contributions of this work

4.4 Impediments to facilitating marketing services for FFVs

Findings revealed a number of impediments to facilitating marketing services for fruits and vegetables. One of them related to remote location of cultivating areas as confirmed by over 94% of the respondents. It thus proved impossible for the various agricultural and food experts to travel to these places. This owes in part to poor roads and bridges in these areas. Some of the isolated cultivations areas mentioned by the respondents include Mbwoye-Kigoma, Nyakanazo-Geita, Karagwe-Kagera, Kisorya-Mara, Simiyu, Njombe, Tabora, Dodoma villages and alike as well as accessibility of transportation modes in cultivating areas. Another impediment was inadequate knowledge and awareness about the urban fruits and vegetable markets by both the farmers' and intermediaries as evidenced by 69% of the respondents. Owing to this, farmers and intermediaries found it very difficult to produce and package fresh fruits and vegetables based on the urban market as further observed below:

Apparently farmers and brokers have little knowledge on the better ways of harvesting and packing fruits and vegetables. They don't even use pallets or boxes at the deck of pick up or Lorries when they transport mangoes, water melons and oranges. They simply use tree leaves and roots in the deck of Lorries and trucks. Unfortunately, they seem unaware that some of these leaves and roots may lead to spoilage of products (Male trader (32), Kigamboni market)

Another constraint is lack of knowledge and experience by the workers dealing with loading and offloading of the fruits and vegetables into the trucks as well as lack of knowledge by the farmers at the time of harvesting the fresh fruits and vegetables as attested by 42% of the respondents. Lack of knowledge and awareness of such issues forced farmers to handle various farms products in a less appropriate manner as evidenced by one of the respondents:

Some transporters think that it is a normal practice to mix different types of fruits and vegetables in the same kind of packages. This is very unfortunate because some items will end up losing their quality by the time they reach the final consumer" (Male intermediary (39), Temeke stereo market)



Fig. 4.4: Mixing of various products during Loading and unloading by workers

Another constraint was lack of knowledge and awareness on the urban market as confirmed by around 38% of the respondents; meaning that farmers and intermediaries were unaware of the nature and dynamics of urban markets. For example, they could not figure out conditions in which the fruits and vegetables were needed at the urban markets. On top of that intermediaries were confronted with the problems of poor marketing information exchange relating to prices for fruits and vegetables as evidenced by over 42% of the respondents. Traders and farmers in particular relied on the poor information sharing about price changes for fresh produces. Farmers and traders could not get specific knowledge on the time and/or date of arrival of fruits and vegetables, kind of transportation required to ferry them to urban areas as well as knowledge on post-harvest loss of fruits and vegetables at farms and market places.

Table 4.4: Summary of Impediments to facilitating marketing services

Nature of Impediments to facilitating marketing services	Frequency in %
Remote location of cultivating areas	94
Farmers' little knowledge and experience	69
lack of knowledge of the workers involved in loading and offloading	42
Poor marketing information exchange	42
Inadequate knowledge on nature of urban market	38

Source: field data 2019

In a nut shell therefore impediments to facilitating marketing services that held the intermediaries back included remote location of cultivating areas, farmers' little knowledge and experience, lack of knowledge of the workers involved in loading and offloading as well as poor marketing information exchange and inadequate knowledge on nature of urban market. These challenges correspond well with some of the existing literatures formerly documented in Tanzania (Mgonja & Utou, 2017; Kimaro & Msogya 2012; Mchenga & Abubakar, 2016), India (Negi & Anand 2015 & 2016; Shukla & Jharkharia, 2013; Sharma & Singh 2011). Specifically, intermediaries' states that poor marketing information exchange relating to the fair prices for FFV impede the famers and intermediaries since some farmers regarding their prices were absorbed by intermediaries when transporting as well as selling FFV to the markets. On the other hand, the impediment related to lack of knowledge/awareness by farmers and intermediaries on the urban market had not been captured by the existing literature suggesting that this could a unique contribution of this work.

Conclusion and Recommendations

Conclusion

The main objective of this study was to examine the factors impeding the role of intermediaries in the supply chain of urban fresh fruits and vegetable and recommending factors for improving the intermediaries' role in this respect. Findings show that factors constraining transportation of urban fresh fruits transportation include; poor road connectivity and network, transport technological challenges, corruption and bribery, geographical factors as well as lack of transport insurance cover. Secondly, factors hindering provision of fruits and vegetables storage facilities and

services include; absence of central storage for fruits and vegetable in urban areas, lack of modern technology on storage for fruits and vegetables, poor quality and standards enforcement mechanisms, inadequate knowledge and awareness on storage facilities as well as unreliable electricity supply. Thirdly, impediments to value addition and quality improvement include; limited financial capital to buy packaging materials, inadequate knowledge on value and quality addition, inadequate value addition and quality improvement technology, lack of storage facilities in the fruits and vegetable tracks, poor enforcement of quality assurance and standards. Finally, impediments to sharing marketing information services include; remote location of cultivating areas that could not allow experts travel there, farmers' little knowledge and experience on marketing issues, lack of knowledge by workers involved in loading and offloading fruits and vegetables, lack of knowledge/awareness by farmers and intermediaries on the urban market, poor marketing information exchange as well as remote location of cultivating areas

Recommendations

In order to alleviate the above mentioned impediments, the following recommendations should be taken into account. In order to alleviate the impediments to intermediaries' role in facilitating transportation of fruits and vegetable the following recommendations should be taken to account. In the first place, road connectivity and network as well as transport technology should be improved to ensure that vehicles carrying fruits and vegetables move smoothly. Responsible authorities such TANROADS in Tanzania should improve road infrastructure which includes constructing tarmac roads, alternative roads in the rural cultivating areas as well as flyovers to halt the traffic jam in the urban centres. This will improve transportation of fruits and vegetables in Dar es Salaam. Furthermore, responsible authorities such as TANROADS and police should effectively address the problems of corruption and bribery among the road traffic police and other individuals involved in public transport. Owing to the risky nature of transporting fresh fruits and vegetables, intermediaries should ensure that fruits and vegetables are insured before transporting them to urban markets. This will help alleviate any losses resulting from poor transportation of fresh fruits and vegetables.

Secondly, in order to alleviate impediments to storage facilities and services government and other responsible authorities should ensure presence of storage facilities in urban areas more especially in the designated fruits and vegetable markets. There must be reliable power supply that will ensure reliable cold storage more especially for perishable products as well as invest heavily on the modern storage technology. Last but not the least, intermediaries and farmers of fruits and vegetables should be sensitized on the knowledge and skills for ensuring proper storage for fresh fruits and vegetables. This is because, many of the resorted to poor storage methods due to lack of knowledge and awareness.

Thirdly in order to alleviate impediments to value addition and quality improvement for fresh fruits and vegetables intermediaries and farmers should be empowered financially to obtain enough capital for buying effective packaging materials. This could be through enabling them to have access to soft loans. Moreover, intermediaries and farmers should be sensitized on the proper knowledge and skills for ensuring high value as well as quality of their crops. Moreover, responsible public and private authorities should ensure that there are in place enough [central] storage facilities that can ensure the required quality and value for fruits and vegetable. To this end the authorities responsible for quality assurance and value additions such as Tanzania Food and Drugs Authority (TFDA), Tanzania Bureau of Standards (TBS) as well as the Small Industries and Development Organisation (SIDO) should play their active role in ensuring quality assurance and standards of fresh fruits and vegetables mainly as required by the market.

In order to alleviate impediments to facilitating marketing services intermediaries should devise innovative ways of reaching the farmers in the remote cultivation areas. Such techniques could be use of mobile phone technology or as well as the possibility for ferrying them to the nearest ad accessible place, where they could be provided with the marketing information. Farmers should be sensitized on the better requirements of urban fruits and vegetable markets so as that their farming as well as post-harvest practices can reflect these marketing requirements. Moreover,

workers involved in loading and offloading the fruits and vegetables from the tracks should be sensitized to do their work better and in a manner that it will not compromise the market standards.

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