Factors constraining the role of intermediaries in provisions of storage services for urban fresh fruits and vegetables supply chain in Dar Es Salaam

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ABSTRACT

Despite the critical role played by intermediaries in storage services of urban fresh fruits and vegetables, storage services of urban fresh fruits and vegetables in Dar es Salaam are still poorly provided by intermediaries. In this paper, we examine the factors constraining intermediaries in providing storage services in the sector. A qualitative case study was adopted and data were collected using documentary review, in-depth interviews, and Focus Group Discussion (FGD) and non-participant observations based on the purposive sample size of 73 respondents. Thematic data analysis strategy was adopted and data were analyzed using MAXQDA 20 software. Findings showed that the intermediaries are generally constrained by technological-related factors, the inadequacy of funds to invest in modern storage, limited knowledge and awareness of modern storage, excessive temperature and atmospheric conditions. We recommend that, in order to improve storage services installation of modern storage facilities in markets and collection centers, providing loans to intermediaries to buy modern packaging and packing facilities, improving market infrastructures, and training intermediaries on the importance of proper storage and how to use contemporary methodology could solve the problem at hand.

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Introduction

Supply chain of fruits and vegetables plays a significant role to the farmers. It ensures products delivery and contributes to the income of both farmers and traders (Pingali et al., 2017). In urban settings, Fresh Fruits and Vegetables (FFV) trade increases proportionally to urban population increase. This provides a chance for vegetable and fruits traders to do business (Gross, Wang, & Saltveit, 2016). The urban population increase has been reported to raise the demand of food as well as the entire fruits and vegetables supply chain (Kasimila & Wambura, 2001). Thus, traders have been forced to source food items from different localities; store them with an intention of supplying them to their esteemed customers. In this context therefore, food storage has been of paramount importance, and has been a strategy for feeding the urban population. On the other hand, storage facilities have helped to improve the supply of food items to people who need them (Olsen et al., 2015). Thus, it is important to store fruits and vegetables properly and in an appropriate condition for future consumptions. This further, ensures that they are protected from being affected by any microorganisms (Bhat & Narayan, 2017). In this regard, cold storage facilities play a vital role in preserving fruits and vegetables in
a good condition (Ziv & Fallik, 2021). Thus, this study among other aspects, contributes to food security and food safety and informs how storage practices have been constrained in the urban settings of Dar es Salaam and appropriate measures to the situation.

As will be made clear in greater details later, one of the important roles played by intermediaries in business supply chain is that of providing reliable and appropriate storage facilities for fruits and vegetables related products (Sparks, 2013; Oguoma et al., 2011). Storage conditions for fresh fruits and vegetables are important in maintaining products quality, preventing post-harvest losses, preventing products from being contaminated with fungus, dust, drying, spillage among other issues (Ziv & Fallik, 2021; Kiaya, 2014). The nature of storage has been associated with value and viability of the products to the consumers in the market (Analysis et al., 2015; Heart & Stroke Foundation, 2013). Moreover, appropriate storage ensures improved food supply and safe delivery to final consumers. All these can only be achieved if intermediaries use sufficient storage methods (Sparks, 2013).

Storage services in this context refer to the process that involves putting a product in clear and appropriate equipment. It also involves the arrangement of items in a reputable place (Dimond & Kendall, 2012). In a nutshell, storage services involve processes like preservation, protection and placing the products in a secured place for future consumptions (Bhat & Narayan, 2017). Storage services may be undertaken into different strategies including preservation, protecting, assembling, packaging and packing among others, before being delivered to customers and it is also considered an effective bridge in the completion of the supply chain (Kiaya, 2014).

With regards to fruits and vegetables, the management of the supply chain widely involves coordination and integration of this flow so as to fulfill the supply and demand which is widely coordinated by intermediaries (Agrawal, 2018; Pujari, 2016; Ahmad & Feher, 2010). In the storage services, intermediaries form an important component in the provisions of storage facilities (Issa & Munishi, 2020; Yigzaw et al., 2016). Although the on-going discussion among scholars provide contradicting observations about the importance of intermediaries in business (Stewart, 2022; Abraham & Pingali, 2021; Pingali et al., 2019; Eberhart & Essexley, 2018), in this context, intermediaries play a very critical role such as facilitating fruits and vegetables assembly and accumulation, providing preserving materials like non-human harmful insecticides as well as facilitating packaging and packing of fresh produces (Issa & Munishi, 2020; Sparks, 2013).

Despite their critical roles, there have been concerns that the role of facilitating storage services of urban fresh fruits and vegetable has been poorly undertaken. Studies (Issa & Munishi, 2020; Negi & Anand, 2015) indicate that intermediaries are incapable of facilitating smooth packaging, assembling, conserving and arranging of fruits and vegetables and have also been reported to be using poor storage facilities and in most cases those with less quality or traditionally made storage facilities like nylon sacks, woven sacks, wooden boxes, wooden crates, canvas sheets and buckets which increases post-harvest loss, and lowers the quality of harvested fruits and vegetables (Mgonja & Utou, 2017; Yigzaw et al., 2016; Mwagike & Mdoe, 2015). Following the situation, by the use of qualitative methods and by collecting data from two large fruits and vegetable markets of Temeke Stereo and Ilaa, we intend to explore the role played by intermediaries in providing storage services, and what constrains their efforts in providing such services in the urban settings of a developing economy of Tanzania as the area is still unattended yet important.

Following the introduction, we present the literature review section in which different literature on the subject are presented. In the research and methodology section, we present the research approach and design used, sampling strategies and the general analysis of our findings. We finally present the findings in accordance to the research objectives, discuss our findings, make conclusion and provide general recommendations.

**Literature Review**

**Empirical literature**

In this section, we present a discussion of different scholars pertaining to the subject under our study. The existing literature highlights factors constraining the role of intermediaries in provisions of storage services for urban fresh fruits and vegetables supply chain focused on storage methods, packaging and packing, assembling and collection of fruits and vegetables as well as preservation and conservation for fruits and vegetables as discussed in the subsequent paragraphs

Beginning with factors constraining the storage methods for fruits and vegetables; Literature outlines the factors constraining fruits and vegetables storage. According to Pujari, (2016) technological related factor associated with cold storages facilities is the most common, followed by inadequacy of funds to invest in modern storage methods such as cold storage facilities. Similarly, in a study by McCurdy Sandra et al., (2009) it was revealed that poor knowledge on the use of modern storage methods affect the performance of intermediaries in fresh fruits and vegetables storage. Moreover, it was expressed that excessive temperature as a result of atmospheric conditions and poor hygiene affects the entire process especially when it comes to storing fruits and vegetables (Gross et al., 2016; Food & Extends, 2013).

In discharging with the factors constraining packaging and packing for fruits and vegetables; As made clear in the preceding chapter, one of the major roles played by the urban fruits and vegetables intermediaries to storage services has to do with facilitating packaging and packing of fruits and vegetables related products. Literature highlights that intermediaries are affected by packaging materials. For instance choice and nature of packaging facilities may or may not affect the storage and quality of fresh produces (Ali et al., 2020; Issa & Munishi, 2020). The use of improper packaging materials as a result of inadequate knowledge is yet another factor that hinders intermediaries from taking their role adequately. (Negi & Anand, 2016; Yigzaw et al., 2016). Because special packaging
materials are requiring and cost a lot, intermediaries need to have huge capital which they do not have. Indeed, inadequacy of financial assistance constrain intermediaries in purchasing packaging facilities for fruits and vegetables as such special modern packaging facilities protect products from contamination or being affected by micro-organisms (Sheoran A, 2015).

Also, factors constraining the assembling and collection of fruits and vegetables; Literature outlines factors constraining the intermediaries’ role when assembling and collection of fruits and vegetables. According to Bhat and Narayan (2017), moisture that leads to food loss caused by water is the first hindrance. In the similar context, a study by Mgonja and Utou (2017) revealed that inadequacy of harvesting tools has negative impact to intermediaries. This has forced intermediaries and farmers to collect FFVs by using traditional methods of climbing and tossing which sometimes is dangerous to the farmer and the produce themselves (Mgonja & Utou, 2017). Moreover, humidity, type and choice of storage facilities for fruits and vegetables have also been hindrances (Arah et al., 2015). These have forced farmers and intermediaries to employ traditional facilities like plastic and wooden crates, which sometimes lead to more problems (Hernández-Rubio et al., 2018; Mazengo, 2014). Another factor constraining this aspect is weather condition at the cultivating areas associated with the raise in temperature which adversely affect the quality and storage of fresh produces (Meyer et al., 2017). In the same manner, evaporation and drought affect the stored fruits and vegetables (Deoraj et al., 2015).

Finally, factors constraining the preservation and conservation for fruits and vegetables were; Another role played by intermediaries is facilitating preservation and conservation of fruits and vegetables. According to the literature, several reasons are responsible for the intermediary’s ability or inability to effectively play this role. One of the constrain is diseases caused by insects, rats and fungi (MOA, 2019). Moreover, selection of preserving methods has both positive and negative effects in this case. For instance intermediaries may or may not opt to drying of some fruits and vegetables before delivering them to the customers (MOA, 2019). It has moreover been revealed that price fluctuations that sometimes leads to losses, and limited shelf time of FFV have been a great challenge in deed (Deoraj et al., 2015; McCurdy; Sandra et al., 2009). Moreover, absence of central storage facilities is another way that affects preservation of storage for fruits and vegetables. In cases where they are present, they are very far from the production line (Issa & Munishi, 2020). On top of that, studies by different scholars (Mgonja & Utou, 2017; Meyer et al., 2017; Negi & Anand, 2015) reveal that skills and knowledge on modern preservation especially cold storage methods are also a constraint to intermediaries’ roles.

**Conceptual framework**

The conceptual framework for this particular study is guided by four major elements including 1) The problem related to the (i) effectiveness/ineffectiveness of intermediaries in provision of storage services for urban fresh fruits and vegetables supply chain (ii) Intermediaries roles in provision of storage services for urban fresh fruits and vegetables (iii) factors constraining the intermediaries’ role in provision of storage services for urban fruits and vegetables supply chain as well as (iv) measures of improving the role of intermediaries in provision of storage services for urban fresh fruits and vegetables supply chain. Accordingly, based on the reviewed literature, the problem addressed by this conceptual framework therefore concerns the ability and to some other extent are inability of intermediaries to play with provision storage services in urban fresh fruits and vegetables. These categories include the storage methods (Issa & Munishi, 2020), packaging and packing (Sparks, 2013; Publication, 2011), preservation and conservation (Robbins et al., 2016) as well as assembling and collections of fruits and vegetables (Agrawal, 2018). Accordingly, in order to realize the improved intermediary’s role in provision storage services, it is imperative to address [the] two major aspects. One is ascertaining the intermediaries’ roles in provision storage services of urban fresh fruits and vegetables such as provision of storage methods for fruits and vegetables and the second one is through examining factors constraining the intermediary’s role in provision of storage services for urban fresh fruits and vegetables supply chain. However, it is expected that information obtaining from the assessment of these two aspects can be relied upon to improve intermediary’s role in provision of storage services for urban fresh fruits and vegetables supply chain.

**Method**

This study was carried out at Ilala and Temeke stereo markets in which fresh fruits and vegetables is undertaken in greater volumes compared to any other markets in Dar es Salaam urban setting. This made it easy for researchers to access both the markets and the right data easily from the right persons on intermediaries’ role in the provision of storage services for urban fresh fruits and vegetables supply chain.

This study employed a qualitative approach with multiple case study design to get deep information related to the practices of intermediaries’ role in provision of storage services for urban fresh fruits and vegetables supply chain (Suryani, 2013). Also, qualitative approach was significant to this study since it enabled the researchers to discover unknown problems, be familiar as well as understand deep information regarding the role of intermediaries in provision of storage services for fruits and vegetables supply chain. Nevertheless, the approach helped authors to be engaged with respondents in discussion of intermediaries’ roles and what constrains their roles (Astalin, 2013). The study employed a purposive sample of 73 respondents who represented intermediaries, market officers, customers, farmers and traders from Ilala and Temeke stereo market in Dar es Salaam.

Data were collected by the use of in-depth interview, non-participant observation, Focus Group Discussion as well as documentary researches to obtain real information from respondents. The interviews time was between 25 to 35 minutes. Intermediaries, market
officers and farmers were interviewed. While interviews with intermediaries and market officers were face-to-face, farmers were interviewed on the phone. A total of three FGDs were conducted at the market place, one with market officers, and two discussions with intermediaries. During FGD sessions, one researcher played an active role to lead the discussion, while the rest recorded the proceedings.

Among the documents used and reviewed by authors included relevant research reports, conference proceeding papers, thesis and book chapters while others were government reports and policies related to fruits and vegetables trade. Therefore, National Foods Reserve Agency (NFRA), horticulture development policy, National Post-harvest Management Strategy (NPHMS) and National Agriculture Policy (2013) through a second phase of a comprehensive Agricultural Sector Development Programme (ASDPII) were reviewed to support background information of this study. This method was relevant since it facilitated report writing as well as building capacity for construction of background information of the study.

In analyzing data, thematic analysis was employed from which important themes from the collected and analyzed data were obtained. Qualitative data in this study and was performed by the help of MAXQDA 2020. The researcher recorded all the data obtained through interviews, typed them and save them in rich text form. These were then summarized and the researcher read through them several times to get familiar with them. Coding was done and important theme were named, defined and meaning given in relation to the topic under the study.

Discussion

The study assessed factors constraining the role of intermediaries in provision of storage services for urban fresh fruits. Findings show that there are several factors as presented in the subsequent paragraphs. These factors are connected to provision of storage methods; provision of packaging and packing materials; facilitation of preservation and conservation, assembling and collection of fruits and vegetables.

Factors constraining the storage methods for fruits and vegetables

Findings show that several factors constrain the role of intermediaries in provision of storage methods for fruits and vegetables related products. Firstly, was technological factor. Respondents emphasized that lack of technology affect negatively the provision of fruits and vegetables storage. For instance, intermediaries ended up employing out-dated and traditional storage methods for fruits and vegetables instead of using modern storage methods such as cold storage facilities like refrigerators. Although some intermediaries managed to use cold refrigerators for storing fruits and vegetables needed by major companies, shops or supermarkets, they were insufficient and only were specified for such big shops and supermarkets that only cater for wealthy communities. One respondent stated hereunder;

In Tanzania, majority of intermediaries and farmers in particular lack modern storage facilities for storing fruits and vegetables and prevent them from getting spoiled for commercial purpose. This obviously jeopardises the farmers’ efforts. The increased rate of post-harvest loss is caused by the lack of storage facilities, poor technology and inadequate funds to buy modern facilities like deep freezers and refrigerators (Male intermediary (38), Temekte stereo market-Dar es Salaam)

Secondly, inadequacy of funds was another constrain to the storage services. It was further depicted that intermediaries were affected by the lack of enough capital for buying adequate modern storage facilities which lead them to poorly handle produce as they only use rudimental tools. Respondents insisted that, shortage of funds constrained majority of intermediaries and farmers in particular to buy cold storage facilities such as cold containers as well as construction of cold room for facilitating the storage of fruits and vegetables.

Another factor was related to knowledge and awareness to using modern storage methods. Accordingly, respondents testified that the negative effect was further spilled by intermediaries and farmers’ poor knowledge on the use of modern storage methods. The respondents stated that, poor knowledge related to selecting and opting to modern storage methods is difficult among the intermediaries in the FFVs supply chain. Some respondents were recorded saying; “we only know traditional methods. These are what we are used to” another said; “even though modern tools are installed, very few of us can use them effectively”. This indicates that the way they assess themselves indicates that they are quite sure that they will hardly use the cooling facilities if not trained perfectly.

Temperatures were too among factors constraining storage of FFVs. In the context of this study it was revealed that temperature affects the storage of FFV in two ways. In the first way, respondents confirmed that temperature has negative effect in the storage of fruits and vegetables. They further identified that when temperature was high it became easier for fruits and vegetables to get spoiled compared to when it was low. For example, one respondent emphasized that;

“Around November, December to January, temperatures are too high compared to the rest of the season. It is in these months that harvesting takes place. So, intermediaries and farmers are supposed to have a means of making sure that their produces are not adversely affected by temperatures before getting to the market (male intermediary (40), Ilala market-Dar es Salaam)”

On the other hand, however, it was reported that high temperatures are important for some fruits including mangoes. They facilitate the easy and smooth ripening of mangoes as compared to the cool temperatures. Thus, during mango harvesting, cool temperatures
hinder the process as mangoes need to be taken to the market while already yellow-ripe. Closely related to it was atmospheric condition as one of the factors with positive and negative effect on storage of fresh produces. Respondents confirmed that water vapour and moisture from atmosphere have negative effects on storage of fruits and vegetables. On the other hand, some respondents alerted that some fruits and vegetables need atmospheric vapour and moisture for serving the function of storage services. They further stated that, vegetables such as spinach and amaranth usually require cold and moisture during storage.

From these findings it can be noted that, intermediaries are basically incapable of effectively playing their role of ensuring storage methods for fruits and vegetables by 100% as expected. Funds, knowledge gap and weather are constraining their efforts. These findings are supported by some of the existing works formerly undertaken including; (Pujari, 2016), (Sandora et al, 2009), and (Issa & Munishi, 2020). It further suggests that this current study significantly contributes to the body of knowledge as far as FFVs and supply chain in general.

Factors constraining packaging and packing for fruits and vegetables

Findings revealed that there were various factors constraining packaging and packing of FFVs. In the first place, the choice and nature of package facilities constrained intermediaries in taking their roles. Respondents confirmed that they are affected by packaging facilities. They mostly adopted tradition packaging facilities such as using wooden crates, wooden boxes, bamboo baskets and sacks which are not good ways for packaging and packing fruits like tomatoes which to a great extent affect the quality of the produce. One of the respondents said that; “...we only use them because we do not have any other option, they distort the quality of our produce” the situation indicate that the choice of materials has great challenges in this context.

Secondly, knowledge and awareness of packing materials was another factor constraining the storage services for fruits and vegetables. Respondents reported that lack of knowledge and awareness related to packing produces had negative effects to storage services for fruits and vegetables. Inadequacy of knowledge with regards to packaging, inclined the intermediaries to use traditional methods of arranging fruits and vegetables in the way they think is appropriate for them. However, the reality is that, hygiene sensible customers will not be interested in these produce as they are aware of quality and health challenges attached to them. Another factor that determss packaging materials was financial assistance. In this factor respondents noted that financial assistance has negative effect to efforts of intermediaries in ensuring adequate packaging and packing for fruits and vegetables. They ended up using poor packaging facilities due to lack of enough capital to buy new one. One of them remarked; “we use all these rudimental tools because we do not have funds to buy modern, safe and efficient materials in the entire process”. This clearly tells that intermediaries do not carry their roles effectively because they do not have adequate funds.

Based on the above findings, it can be said that intermediaries’ inability to undertake their role of packaging and packing services for ensuring adequate provision of storage services is associated with the choice and nature of packaging facilities, knowledge and nature of packaging materials and financial assistance. These findings reflect other previous findings as noted by different scholars (Ali et al, 2020; Issa & Munishi, 2020; Negi & Anand, 2016; Yigzawet al,2016; Sheoran, 2015). To a great extent, findings given from the given literature had paved a way to these findings. While financial related challenge was the most articulated challenge, knowledge was also mentioned in the literature.

Factors constraining the assembling and collection of fruits and vegetables

Findings established that the commonest factors which constrained the assembling and collection of fruits and vegetables related products included the extent of moisture, presence of harvest and collection tools, relative humidity, choice and types of storage facilities as well as evaporation and drying. The rate of moisture constrains the role of intermediaries in assembling and collection of fruits and vegetables. Intermediaries and farmers revealed that moisture affected their role during collecting and assembling fruits and vegetables from the farms. The respondents stated that the amount of moisture content lead to food loss and spoilage. For example, fruits like tomatoes tended to get spoiled very quickly when they are exposed to moisture.

Presence of tools was another constraint in this aspect. Respondents reported that collection and harvesting tools were among factors constraining products assembling and accumulation from the farms. Through this factor, the respondents It was confirmed that, when there are enough tools such as baskets, and buckets, they serve to collect and harvest fruits and vegetables, however, due to the fact that there are limited tools, and intermediaries have limited funds to buy more adequate, valuable, up-to-date tools, the process of harvesting and collecting becomes very difficult and hence hinders intermediaries in carrying their role effectively. One respondent complained, “…this is caused by scarcity of tools and we do not have enough money to buy more...”.

Another factor that deterred products assembling and collection was relying on relative humidity. According to the finding, respondents revealed that relative humidity has negative effect to the storage services of fruits and vegetables. They further emphasized that humidity leads the fruits and vegetables to decay as well as short shelf life before reaching to the market. It was also provided that, humidity some time causes transportation problem especially in the morning. Making it difficult for the trucks to reach the collection sites, or the market centres in time. This is evidenced by one respondent hereunder;

“In some places where we collect fruits and vegetables like some parts of Tanga especially Lushoto and Handeni district, these places are characterized by very slippery roads especially during the rain or wet seasons, therefore, transportation of fruits and vegetables is always difficult in localities. (Male Intermediary (45), Ilala Market)”
Furthermore, the choice and types of storage facilities was among factors that constrain the role of intermediaries in assembling and collection of FFVs. The findings further indicated that poor or absence of storage facilities such as pallets, canvas materials and alike lead to the loss of products quality and standards. The use of poor materials affects quality and lead to these products to face stiff competition from imported ones, or sometimes have poor quality.

Finally, evaporation and drying were another factor that constrain accumulation and assembling of fruits and vegetables. Respondents further said that, fruits such as coconuts, peanuts, and maize totally need well drying condition and somehow evaporation to take place. In situations where rainy conditions are experienced, it affects all that is stored as it is mostly stored under un insulated conditions. This does not only affect the quality of the produce but also, the capital of intermediaries due to spoilage.

Findings do not tell us a different story since there are factors constraining the intermediaries from collection and assembling of fruits and vegetables supply chain in the context of moisture content, presence of harvest and collection tools, relative humidity, choice and types of storage facilities as well as evaporation and drying. These findings generally correspond well with former studies in various literatures notably (Bhat and Narayan (2017), who explained about the extent to moisture affects storage. Moreover, Mgonja & Utou (2017) clarified about presence of harvesting and collection tools. While Arahel al.,(2015) who particularised about relative humidity and its positivity and negativity on storage. Mazengo (2014), elaborated about the choice and types of storage facilities and Meyer et al (2017) elucidated about evaporation drying. However, an interesting part of this discussion relates to the extent of moisture and humidity as among the factors affecting the fruits and vegetables as well as transportation services provided by intermediaries when carrying fresh produces from the farms.

Factors constraining preservation and conservation for fruits and vegetables

Findings identified various factors constraining intermediaries from playing the role of preservation and conservation of fruits and vegetables. These include diseases caused by microorganisms, selection of preservation methods, relative price, limited time, central storage facilities, skills and knowledge as well as technological related factors. With regards to, diseases caused by microorganisms, it was revealed that these affect the preserving fruits and vegetables. The respondents further said that, organisms such as rats, fungi and insects affect fruits and vegetables stored and the effect is caused by poor storage and preserving tools and methods.

Another part of the constrain was related to prices fluctuation and funds as far as ensuring preservation for fruits and vegetables. In this context, respondents provided that at the peak of the season, prices of FFV are normally relatively down compared to off season where prices are very high in relation to customers demand become high. Unfortunately, peak seasons affect negatively the relative prices of fresh produces. This role was further constrained by limited time as far as preserving fruits and vegetables is concerned. Accordingly, findings revealed that intermediaries were affected by desired time for maintaining proper conditions and preservation of fruits. For example, they failed to forecast a time of making adequate handling, packaging as well as storage of harvested produces. Also, the way they determined their time of preserving fresh produces is according to the time of harvesting and packing the same.

Furthermore, findings show that, scarcity of central storage facilities are among constrains to storage services specifically in the context of preservation and conservation of fruits and vegetables. One of the respondents during an interview mentioned that;

“Majority of farmers in relation to intermediaries lack central storage facility that could be built up near to market as well as at the farms, we advise the stakeholders to tie up this factor so as to minimize the extent of products loss. As a means of solving the situation intermediaries in liaison with farmers have opted to tradition storage facilities such as boxes, bamboo baskets and wooden crates for the storage and handling facilities (Male intermediary (39), Temekte stereo market -Dar es Salaam”

On the other hand, the study revealed that, skills and knowledge were among the factors constraining preservation of FFVs. Intermediaries and farmers in particular were of the view that, had they possessed adequate skills of storing FFV, they would have then been able to forecast a time of making adequate handling, packaging as well as storage of harvested produces. Furthermore, findings showed that, scarcity of central storage facilities are among constrains to storage services specifically in the context of preservation and conservation of fruits and vegetables. One of the respondents during an interview mentioned that;

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Conclusions

“Majority of farmers and intermediaries lack knowledge and skills of maintaining necessary storage approaches. This is basically caused by poor government intervention of the same to ensure this practice is conducted at the farms and with adequate skills (Group Discussion (9, members), Ilala market-Dar es Salaam)”

Concluding from the above findings, it can be said that generally intermediaries were constrained by factors relating to preservation and conservation of FFV. These include diseases caused by microorganisms, selection of preservation methods, relative price, limited time, central storage facilities, skills and knowledge as well as technological related factors in business supply chain. These findings echo previous findings by other scholars (McCurdy Sandra et al., 2009; Deorajet al., 2015; Issa & Munishi, 2020; MOA, 2019; Kiaya, 2014). An interesting discussion in this aspect was the lack of central storage facilities as well as technological factors when the farmers and intermediaries adapt to traditional means to preserve fruits and vegetables which present greater challenge in the business supply chain.
The main objective of the study was to explore the intermediary’s roles in provision of storage services for urban fresh fruits and vegetables in the context of supply chain with the view of establishing why the intermediaries were incapable of effectively playing their roles in provision of storage services of the urban fresh fruits and vegetable thus recommending strategies to improve the situation. While several findings have been revealed, it is very clear that emphasis on quality, seriousness and limited funds are the major issues of great concern. It can be generalised that the sector still lacks serious investment, and as a result it is still characterised by the use of rudimentary tools, unhealth storage practices which at the end endanger consumers’ health. Based on the findings obtained, several recommendations are put forward as a means of solving the observed pitfalls.

Firstly, stakeholders should invest and sensitized in advancement of technology by installation of modern storage facilities such as cold sensitive materials. Such materials can be installed in markets, collection points or even the use of cold sensitive trucks. All this will help in delivering fresh and quality products which will not only attract the local market, but also the international one.

Secondly, in controlling the factors constraining packaging and packing for fruits and vegetables; various stakeholders such as government and financial intermediaries should provide loans to intermediaries and farmers to buy modern packaging and packing facilities and train them on the better use of such tools. This can be done in seminars and by the use of agriculture extension officers.

Thirdly, in promoting assembling and collection of fruits and vegetables; government should improve the business environment by building suitable warehouses with adequate facilities at cultivating and in urban areas for facilitating storage fruits and vegetables produced. In addition, emphasis on cold chain should be mainstreamed among the private sector.

Finally, to retrieve the factors constraining the preservation and conservation; the use of safe, human-safe and quality drugs or insecticides for preventing fruits and vegetables against any microorganisms should be enforced. Moreover, intermediaries should be encouraged to adopt modern preserving and conserving methods for fruits and vegetables. This can be achieved by adopting cold storage as well as arranging bulk storage of fruits and vegetables in one of the cold seismic refrigerated room for finite storage purpose.

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