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CHALLENGES FACING TRANSPORTATION OF URBAN FRUITS AND VEGETABLES SUPPLY CHAIN CONTINUUM IN DAR ES SALAAM, TANZANIA

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ABSTRACT

Despite the critical role played by transportation in the supply chain of urban fresh fruits and vegetable, poor transportation continues to threaten the supply chain of fruits and vegetables. This study examined challenges of transportation in the supply chain of urban fresh fruits and vegetables in Dar es Salaam City, with a major focus on handling, connection and distribution. Qualitative approach was adopted and data were drawn from a purposive sample of 65 respondents using interviews, Focus Group Discussion (FGD) and non-participant observation. Thematic analysis was adopted with the help of MAXQDA 10 software. Findings, proved that transportation challenges were related to inappropriate handling tools, poor transport technology, inadequate knowledge of handling fruits and vegetables by the workers, inadequate number of transportation vehicles and poor maintenance of storage facilities. It was further reported that inadequate road network and connectivity characterised by remote location of the farms, poorly constructed roads and bridges, narrow roads, geographical constraints as well as lack of appropriate transport system challenged the transportation role. Other challenges were related to lack of information exchange mechanism, inadequate distribution system resulting from absence of distribution and central storage, corruption and bribery, as well as lack of insurance cover. The study advocates for the provision of handling tools, special vehicles for transporting these produce, improvement of road infrastructures, introduction of processing industries and provision of insurance cover to intermediaries. It further proposes to institutions responsible for curbing corruption such as the PCCB and police to address corruption challenge.

Keywords: *Supply chain, transportation, challenges, fruits and vegetables, urban areas*

INTRODUCTION

Background Information

Urban fruits and vegetable trade has become critical due to rapid urbanisation in the context of developing nations. The trade serves to meet the demand for food, alleviate poverty and famine, especially among low-income groups. This has been evidenced in India, Pakistan, Latin America, South Africa, Ghana and Kenya where fruits and vegetables trade is undertaken in greater volumes (Pera, 2018). In Tanzania, about 30% of the entire population live in urban areas. Precisely, Dar es Salaam accounts for 40% of 22 million of urban population in Tanzania. This implies that the number of fruits and vegetables farmers and traders in the city is also significant (FAO, 2015; Moran, 2018; Issa & Munishi, 2020). While on one side fresh fruits and vegetables trade improve vendors' livelihood, on the other side it contributes to national economy and ensures food safety and security for the urban residents who sell and buy perishables and non-perishable goods (Issa, 2019; Thompson, 2015;Ackerley *et al.*, 2010)). It further forms a real market services provision by meeting urgent demand from potential customers (Mei & Afli, 2017;Thompson, 2015).

Transportation serves as a significantly critical component of supply chain worldwide as it primarily facilitates the movement of products from the origin to ultimate consumers through appropriate transportation mode (Lipińska *et al.,* 2019; Ackerley *et al.,* 2010;Shukla & Jharkharia, 2013). Among the pivotal role played by transportation involves linking economic activities for a sustainable supply chain. Without transportation, products cannot be shipped to different stages of supply chain. In fruits and vegetables supply chain, transportation plays extremely a critical function and it can affect the quantity and quality of the products as many of them may be vulnerable to perishability. Hence, optimizing transportation of fruits and vegetables supply chain becomes critical for sustaining and securing food and business in particular. This further suggests that business highly requires transportation for decision making (Lemma *et al.,* 2014).

Moreover, the central function of transportation is to absorb part of risks in which fresh fruits and vegetables supply chain face which include but not limited to organisation of fleet management, save time, facilitate products handling, reduce unsuitable environment that hamper fruits and vegetables such as humidity, temperature, physical injury, and composition to mention just a few (Thompson, 2015; Iordachescu *et al.,* 2019). Specifically, transportation links fruits and vegetables intermediaries, producers and customers, meaning that it influences communication and information among supply chain members, raise competitors' awareness as well as networking (Mgonja & Utou, 2017); Second, it helps to eliminate unnecessary waste of products in supply chain. Third, it reduces overhead cost of production, helps organizations to meet the needs of the customers in appropriate time and also contributes to economic growth of the country (Mei & Afli, 2017).

Transportation in the context of supply chain involves three key functions notably handling, networking and connectivity, as well as distribution. Handling involves the selection of handling facilities for carrying products from one place to another (Lehtinen *et al.,* 2016; Sheoran A, 2015). The network and connectivity aspect of transportation involves searching for the appropriate markets, facilitate orders, processing as well as assembling products before delivering them to the market. It also involves creating market demand and supply of fruits and vegetables (Oguoma *et al.,* 2011; Agrawal, 2018). On the other note, the distribution aspect of transportation concerns coordination of customers and producers, facilitating product distribution, arrangement of distribution structure, provision of right information to mention just a few (Mwagike & Mdoe, 2015;Lehtinen *et al.,* 2016).

Despite the presence of these functions in the transportation roles, these functions have been reported to face various challenges. With regards to handling, scholars reveal that financial constraints that deny farmers and traders abilities to buy proper handling materials (Atanda *et al.,* 2011; Zakaria et al., 2014) and make reasonable investment (Bolarin & Bosa, 2015 ;Verma *et al.,* 2019), inadequate knowledge in loading and offloading of fruits and vegetables from vehicles (Wakholi *et al.,* 2015;Verma *et al.,* 2019; Agarwal, 2017), poor packaging facilities, tools and equipment (Mgonja & Utou, 2017) and poor maintenance of storage and handling facilities (MOA, 2019;Bolarin & Bosa, 2015). While the network and connectivity function is challenged by poor road network with substandard constructed roads and bridges (Kiaya, 2014; Negi & Anand, 2016b) and lack of appropriate transport systems and narrowness of the feeder roads from the main road to farms (Iordachescu *et al.,* 2019;Mwagike & Mdoe, 2015;Bolarin & Bosa, 2015 ;Mei & Afli, 2017). Literature further informs that the distribution role is challenged by inadequate distribution mechanism characterised by poor distribution system, weak central storage facilities, use of less suitable containers designed to carry fresh produces from farms to other destinations in the urban setting for wider circulation (Kitinoja & AlHassan, 2012; Pera, 2018;Negi & Anand, 2015b; Bolarin & Bosa, 2015; Gangwar *et al.,* 2014; Shukla & Jharkharia, 2013; Kiaya, 2014; Sharma & Singh,

2011;Negi & Anand, 2016b), bribery from security official particularly at night when carrying transporting cargos to urban areas and mechanical vibration and compression when transporting fresh foods (Verma *et al.,* 2019; Iordachescu et al., 2019; Mgonja & Utou, 2017).

Following the significance of transportation role in the context of fruits and vegetables supply chain and its imperative challenges, the government of Tanzania and other relevant stakeholders, have undertaken several initiatives to improve the fruits and vegetables (FFVs) supply chain and the transportation in particular. The enactment and implementation of various regulatory frameworks by both the local and central governments were mainly geared towards solving such challenges (URT, 2010). Such regulatory frameworks like the Trade Act, the National Strategy for Growth and Poverty Reduction I & II, as well as SMEs policy were intended for the same (Food & Report, 2013; URT, 2005). Moreover, while the national horticulture policy addresses constraints to horticultural development in Tanzania (HODECT 2011; Issa & Munishi, 2020), the National Post harvest Management Strategy is aimed at improving efficiency and reducing food losses along the value chain (MOA, 2019).

Unfortunately, despite the great importance of transportation for urban fresh fruits and vegetables in the context of supply chain a well as initiatives invested in improving it, the supply chain of this crucial business in the urban areas is still not impressive to the expectations of many stakeholders (Ackerley *et al.,* 2010;Pera, 2018). This is evidenced by among other things an increased magnitude of post-harvest losses of fresh fruits and vegetables in many urban areas in Tanzania which is estimated at 30 - 40% for cereals and 16% for fresh food including fruits and vegetables (MOA, 2019; Mwagike & Mdoe, 2015;Mgonja & Utou, 2017; MoF, 2013). Such state of affairs has far reaching negative effects on fresh fruits and vegetables supply chain to the urban community majority of whom depend largely on fruits and vegetables transportation for their livelihood (Mwagike & Mdoe, 2015; Rovňaník, 2014; Adero, 2015).

Following the above discussed trend, various studies have attempted to look into the supply chain of urban fresh fruits and vegetables focusing on transportation (Wadhwa, 2018; Lemma *et al.,* 2014; Makochekanwa, 2014 ;Shukla & Jharkharia, 2013;Agarwal, 2017; Issa & Munishi, 2021). However these studies have not managed to adequately identify and discuss challenges facing the transportation of urban fresh fruits and vegetables. This further suggests that, there is a dire need for conducting a thorough study on issues facing transportation of urban fresh fruits and vegetables and determine strategy for improving it. Thus, this study intends to explore challenges facing transportation of urban fresh fruits and vegetables supply chain with the view to recommend measures of improving the same. Specifically, the study examines challenges facing transportation for urban fresh fruits and vegetables supply chain in Dar es Salaam in order to determine strategies for improving the situation. As foreseen earlier, findings for this research would be beneficial for providing better basis for decision making among various stakeholders such as intermediaries, customers, food processing industries, market officers, non-trade institutions and consumers. The research also helps the Government to be aware of the challenges facing transportation for fresh fruits and vegetables supply chain in urban areas since this sector contributes significantly the individual livelihoods and government income.

METHODOLOGY

This research was carried out in Dar es Salaam city and concentrated in the two municipalities of Ilala and Temeke. Field work was undertaken in the two major markets of Ilala and Temeke stereo where fresh fruits and vegetables trade is undertaken in greater volumes compared to other parts of the city. Also, the two markets are considered to be among the main public markets in which fruits and vegetables supply chain is easily accessible; an aspect that enabled researchers to get hold of the right information on the challenges facing transportation of urban fresh fruits and vegetables supply chain. Dar es Salaam is the

largest city in Tanzania that borders the Indian Ocean as well as the Coast Region. 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 are undertaken across all Dar es Salaam municipalities (MOA, 2019).

This study employed a qualitative case study design approach in a bid to get in-depth data on challenges facing transportation of urban fresh fruits and vegetables supply chain. Qualitative approach was further appropriate for facilitating exploration, explanation, discovery as well as an understanding of the challenges facing transportation of urban fresh fruits and vegetables in the supply chain context. The approach helped the authors to closely engage with respondents through direct contact with them as well as physical involvement in the setting (Astalin, 2013;Wisdom & Creswell, 2013; Astalin, 2013; Hancock, 2006). The approach made it possible to capture feelings, perceptions, attitudes, values, beliefs and experiences of various groups that were involved in the urban fresh fruits and vegetables trade as formerly suggested by qualitative research experts (Mohajan & Mohajan, 2018;Wisdom & Creswell, 2013). A purposive sample size of 65 respondents was employed whereby 30 of the respondents were obtained from Ilala Market, and the remaining 35 respondents from Temeke Stereo Market.

Multiple methods of data collection including in-depth interviews, focused group discussion, non-participant observation as well as documentary review were used. The interviews lasted between 15 and 25 minutes in order not to disturb the respondent's business time. The three FGD sessions were carried out by the two researchers, a moderator and a recorder. Focus Group Discussion (FGD) comprised of 5 to 10 respondents men and women aged between 20 and 55. These helped to capture perceptions, opinions, beliefs, and attitudes of the intermediaries towards the role of intermediaries played in the transportation in which big challenges for FFVs happened at urban setting. It also provided checks and balance of the information adding to trustworthiness of collected information. Some of the documents reviewed by the authors include former relevant research reports, government report, and website pages. Moreover, in-depth interviews were conducted with around 65 respondents including, the intermediaries, farmers, market officials, customers and traders. This method was particularly relevant in facilitating rapport building. It also enabled the authors to re-structure the interview guide and questions as well as modify the repeated answers based on the respondents' knowledge, ideas, views and perceptions (Kothari, 2004). The interviews facilitated interaction between authors and respondents given that some of the respondents could not read and write and that did not have stationary office space to store and write questionnaire properly. Moreover, some respondents were in hurry in such a manner that they were not ready to fill in a questionnaires which was the reason for the authors to opt in-depth interview, Focus Group Discussion and non-participant observation.

Authors employed thematic qualitative data analysis strategy to summarize, arrange, organize, interpret, and present the findings in relation to the main and specific objectives of the study. Specifically, data was grouped and codes were generated, leading to categories and themes. Authors were keen to ensure that the data were collected logically and realistically to respond to the research objectives. Thereafter, Swahili transcriptions of the data were undertaken and later translated into English. Thereafter, the handwritten transcripts were saved as documents in MS word.. Analysis was conducted using MAXQDA 10 [VERBI Software, Marburg, Germany]. Data reliability and validity was ensured through application of prolonged engagement with respondents, adoption of triangulation as well as data auditing and member checking.

FINDINGS AND DISCUSSION

This section explores challenges facing transportation of urban fresh fruits and vegetables supply chain. It focuses on the three aspects notably; handling, network and connection as well as distribution system. This is in response to the foregoing section which shows that increasingly transportation for fresh fruits and vegetables supply chain was challenged based on the above three mentioned aspects.

Challenges facing handling of the fresh fruits and vegetables

This research firstly focused on assessing the challenges facing handling of fresh fruits and vegetables as an important function of transportation. Handling function in this respect includes dealing with the products in various ways and specifically selection of handling facilities such as devices for carrying products to various destinations as well as provision of skills to workers responsible for loading and offloading of products (Lehtinen *et al.,* 2016; Sheoran A, 2015).

Accordingly, findings established a number of challenges associated with handling function of fresh fruits and vegetables. First, were financial constraints emanating from high transportation costs as attested by (74%) of the respondents who emphasized that their financial capital was not adequate to buy and use modern handling facilities hence resorted to the use of traditional and poor ones such as wooden-box, as well as using manual handling system. This aspect was also established during the Focus group discussion where some respondents mentioned of high costs associated with carrying fruits to various destinations. Transporters attested that they had to pay high amount of transport costs in order to carry FFVs from the farms to urban areas.

Another challenge that confronted handling was poor transportation technology which essentially meant inappropriate handling tools for facilitating handling of fruits and vegetables as attested by (65%) of the respondents. They argued that handling facilities for fruits and vegetables were almost missing for various categories of traders a reality that compelled them to resort to manual and less efficient tools as confirmed below:

> *Sometime we use wooden box and sacks for handling our farm products. We are supposed to use these devices due to the fact that we do not have enough funds to afford modern ones. As a result for this, products are transported by inappropriate mean such as open trucks in the local containers as I have mentioned.* ***(Male Intermediary (46), Temeke stereo Market)***

Another related challenge for handling was poor transport technology as evidenced by (65 %) of respondents who attested that trucks and lorries were not constructed and equipped with modern and scientific storage devices such as deep freezers and refrigerators for storing FFVs. This consequently led to usage of traditional storage facilities like wooden crates, tables and canvas sheets, and leaves to transport the products. This led to the poor handling during transportation as attested by one of the respondents here under:

> *When transporting these products to urban areas transporters use mainly open trucks to transport them. As you are aware these trucks do not have any kind of modern and scientific facilities to handle and carry fruits and vegetables as a result, they use their own local and less efficient means to handle the products during transportation. This sometime leads to damage and deterioration of products* ***(Female Transporter (42), Temeke Market)***

Another challenge that confronts handling of fruits and vegetables during transportation is related to lack of proper knowledge and sensitisation on products loading and offloading by transportation workers as attested by (58%) of respondents who confirmed that loading and offloading of fruits and vegetables was done traditionally and manually due to lack of knowledge and awareness by the workers as further evidenced by one of the respondents:

> *Majority of the people involved in loading and offloading of fruits and vegetables are handicapped when it comes to proper knowledge on loading and offloading of fruits and vegetables. Simply they lack knowledge, resources and tools for the job. This leads to injury among them as well as spoilage of products quality. This makes them end up with low profits.* ***(Intermediary (44), Temeke Stereo Market)***

Another challenge that confronted handling for fruits and vegetables was poor road infrastructures as confirmed by (32%) of respondents. Respondents stated that, when transporting the products to various destinations trucks would take too long to arrive to the destinations due to poorly constructed and dilapidated roads. This consequently led to a small number of number of vehicles for transporting fruits and vegetables as witnessed by (52%).

Table 1: Summary: Challenges facing handling of fresh fruits and vegetables

Nature of inappropriate handling tools	Frequency in %	Ranks
Financial constraints and high transportation costs	74	1
Poor transport technology and poor handling	65	2
Poor knowledge of loading and offloading by workers	58	3
Inadequate number of transportation vehicles	52	4
Poor road infrastructures as confirmed	32	5

Source; field data, 2020

Drawing from the above summarised findings it can be concluded that challenges related to handling of urban fruits and vegetables include financial constraints and high transportation costs, Poor transport technology and poor handling, poor knowledge of loading and offloading by workers, inadequate number of transportation vehicles as well as poor road infrastructures as confirmed in the preceding presentations. These challenges do not tell a completely different study. This is because such challenges had been earlier on identified in various parts of Africa and Asia in general as evidenced by (Issa &Munishi, 2020;Mazengo, 2014; MOA, 2019; Technology, 2018; Mwagike & Mdoe, 2015; Bolarin & Bosa, 2015 ; Mei & Afli, 2017). Findings for this current study therefore firmly contribute to the existing body of knowledge by complementing positively on the existing literature.

Challenges to connection and networking of the fresh fruits and vegetables

The second focus of this research was on the assessment of challenges related to connection and networking as an important function of transportation of the urban fresh fruits and vegetables. As explained previously, the aspect connection and networking in respect transportation involves searching for appropriate markets, facilitate orders, processing of products, products assembling as well as creating market demand and supply of fruits and vegetables (Oguoma *et al.*, 2011; Agrawal, 2018; Mwagike & Mdoe, 2015; Lehtinen *et al.*, 2016)

Findings for this particular aspect identified a number of challenges facing connection and networking function of transportation of fruits and vegetables. First was poorly constructed road and bridges as confirmed by (55.38%) of respondents. They affirmed that road and bridges towards the farming areas were not constructed well and that there were no adequate alternative roads to the farms in case one road was unpassable. This consequently led to delays in picking up and transporting the products to various markets. Moreover, connection and networking were challenged by narrowness of the feeder roads from the farms as well as lack of tarmac roads an aspect that further made them less passable especially during the rainy seasons. Respondents complained that most roads in the cultivating rural areas, had been forgotten by government although majority of urban population depended on the farmers' produces. The above explanations are further attested by the below respondents.

> *The biggest challenge for our products is that Lorries arrive late due poor roads as well as lack of alternative roads. We depend almost on only one route to transport our goods from Iringa Region that is via Kitonga hilly road. But when the trucks are about to arrive to urban markets they are again challenged with the problem of traffic jam which causes further delays.* ***(Male Trader (52), Ilala Market)***

> *At the cultivating areas, we spend a lot time to collect fruits and vegetables due to narrowness of the interior roads. They are not constructed in good quality and they are characterized with water, mud and wet sand more especially during the time of rain. By the way, the government should consider roads considering its vitality in livelihood* ***(Female Intermediary (49), Temeke Stereo Market***

Another challenge which confronted connection and networking of the fruits and vegetables transportation was related to remote location of the farms and farmers as attested by (61.6%) of respondents. Respondents revealed that, some farmers were compelled to move their products near the main road using animals and wheelbarrows in order to access transport as confirmed by one among many respondents who participated in the study:

> *We must employ own efforts to move our products the roads where they can be accessed by the transportation agents. In this case must use the local means to carry our products to near the main roads. It is very tiring but we must do it. Otherwise, we shall not be able to be able to sell or products and this will jeopardise our business very seriously.* ***(Male Intermediary (56), Ilala Market****)*

Another challenge that confronted connection and networking function in the context of transportation of fruits and vegetables was related to lack of timely information exchanges among the supply chain actors as further evidenced by (51%) of the respondents. They argued that there was hardly accurate and timely information sharing between the farmers and intermediaries. They sometime communicated through mobile phone, but sometime poor network hampered the information exchange. Following this situation, farmers and intermediaries could arrange for transport in a timely manner. This among other things led to the spoilage of fruits and vegetables.

Connection and networking function was further challenged by some geographical constraints as evidenced by 35% of the respondents. They meant that fruits and vegetable farms were located in hilly areas and sometimes in valleys characterised by heavy rains. Such situation made the transporters and intermediaries fail to transport the products timely as further attested by one respondent here under:

*Some of the places where we collect fruits and vegetables like Vitomo village and Lilambilole in Iringa region are characterized by very slippery roads more especially during rain seasons. As a result, these places are not well accessible because roads are not passable due their remoteness. Therefore, transportation of fruits and vegetables becomes so difficult for intermediaries and transporters. (**Male FGD at Ilala Market)***

Table 2: Summary; Challenges to connection and networking function of fruits and vegetables

Nature of inadequate road and connectivity	Frequency in %	Ranks
Poorly constructed road and bridges	55.38%)	2
Remote location of the farms and farmers	61.6%)	1
Lack of timely information exchanges among actors	51	3
Geographical constraints	35	4

Source: field data, 2020

Conclusively, challenges to connection and networking function of fruits and vegetables in the urban setting include poorly constructed road and bridges, remote location of the farms and farmers, lack of timely information exchanges among actors and geographical constraints. These findings do not tell a completely new story as far as these challenges is concerned. This is because, almost similar findings had been established in different parts of Asia and Africa particularly in Tanzania by in various parts of Tanzania (Mgonja & Utou, 2017; Mwagike & Mdoe, 2015) and some part of Asia (Iordachescu et al., 2019; Bolarin & Bosa, 2015; Mei & Afli, 2017; Kiaya, 2014; Negi & Anand, 2016b). The current finding therefore contribute to the existing knowledge about this particular subject matter in the sense that it corroborates this knowledge.

Challenges facing distribution system of the fresh fruits and vegetables

The third focus of this research assessed challenges facing the distribution system as an important component of transportation function of the urban fresh fruits and vegetables. The aspect of distribution system in the context of this paper relates to coordination of customers and producers, facilitating product distribution, arrangement of distribution structure, provision of right information to mention just a few (Mwagike & Mdoe, 2015; Lehtinen *et al.*, 2016).

Accordingly, findings revealed that distribution function of the fruits and vegetables was hampered by less effective distribution system from the farms to urban areas. Specifically, distribution system was confronted by absent of central storage centres in urban areas as evidenced by (58.5%) of respondents. Consequently, fruits and vegetables traders were compelled to use less convenient storage facilities such as wooden crates, wooden box, bamboo baskets, canvas materials owing to the absent of central storage devices.

Moreover, lack of distribution centres in urban areas further emerged as a critical challenge to distribution as evidenced by 62% of the respondents. This means that actors could not conveniently collect fruits and vegetables from several parts of the rural areas. This state of affairs consequently, forced the intermediaries and traders to distribute fruits and vegetables by their own less effective means of transport in urban areas. Furthermore, distribution system was hampered by lack of suitable containers designed to transport fresh fruits and vegetables as attested by around 52% of respondents. Consequently farmers and some traders were compelled to use poor facilities that could not effectively facilitate distribution of fresh fruits and vegetables supply chain in the urban setting as proved here under:

Look at that truck. Majority of us arrange the transportation routes by ourselves, but few of the intermediaries organized themselves to arrange one trucks to transport different products. Subsequently we dislike to mix products in one truck but we practiced this due to lack of enough fund of hiring truck. We doing so because everyone has brought different commodities here. There are those who bought orange in tonnes, others are onions, potatoes, bananas, avocadoes, pineapples and pension. ***(Female Intermediary (56), Temeke Stereo Market)***

Another challenge to distribution function was corruption and bribery as attested by (58%) of respondents. Respondents explained that during the process of distributing fresh produces they were approached by some unfaithful police and revenue officers who asked for bribes in order to allow them to continue with the journey. This delayed the distribution process as it would compel them to stop many times in different stations.

Table 3: Summary: Challenges facing distribution function for fruits and vegetables

Nature of inadequate distribution system.	Frequency in %	Ranks
Absence of central storage centre in urban areas	58.5	2
Absent of distribution centre in urban areas	62	1
Lack of suitable containers designed to transport FFV	52	3
Lack of suitable containers	52	4
Corruption & bribery by unfaithful security & revenue officers	58	5

Source: field data, 2020

Conclusively, challenges facing distribution function for fruits and vegetables relate to the absence of central storage centre in urban areas, absent of distribution centre in urban areas, lack of suitable containers designed to transport FFV, lack of suitable containers as well as corruption & bribery by unfaithful security & revenue officers. These findings do not provide completely new story to the existing literature, because almost similar findings had been established in different parts of Asia and Africa specifically in Tanzania as evidenced by (Makochekanwa, 2014: Issa and Munishi, 2020: Mei and Afli, 2017; Lipińska et al., 2019: Mwagike and Mdoe, 2015; Verma *et al.*, 2019; Iordachescu et al., 2019; Mgonja and Utou, 2017; Kitinoja and AlHassan, 2012; Pera, 2018;Negi and Anand, 2015b; Bolarin and Bosa, 2015; Gangwar *et al.*, 2014; Shukla and Jharkharia, 2013; Kiaya, 2014; Sharma and Singh, 2011;Negi and Anand, 2016b). These current findings therefore contribute to the existing body of knowledge by confirming these challenges.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

To conclude this study intended to explore challenges facing transportation for urban fresh fruits and vegetables supply chain with the view to recommend measures of improving the same. This study examined challenges of transportation within the supply chain of urban fresh fruits and vegetables in Dar es Salaam City, and it focused on the three functions of transportation in the context of supply chain notably handling, connection and networking as well as distribution system. Findings proved that challenges related to handling function of urban fruits and vegetables include financial constraints and high transportation costs, poor transport technology and poor handling, poor knowledge of loading and

offloading by workers responsible for this task, inadequate number of transportation vehicles as well as poor road infrastructures as confirmed in the preceding presentations. Moreover, challenges to connection and networking function of fruits and vegetables include poorly constructed roads and bridges, geographical constraints such as bad weather during rainy season, hilly and mountainous landscapes, remote locations of the farms and farmers. Another one was lack of timely information exchanges among actors. Ultimately, challenges facing distribution system for fruits and vegetables were the absence of central storage centre in urban areas, absent of distribution centres in urban areas, lack of suitable containers designed to transport FFV as well as corruption & bribery by unfaithful security and revenue officers. Findings for this current study therefore firmly contribute to the existing body of knowledge by complementing positively on the existing literature.

Recommendations

The foregoing section has highlighted a number of challenges facing transportation for urban fresh fruits and vegetables supply chain in Dar es Salaam Tanzania. In order to alleviate the above-mentioned challenges, the following recommendations should be considered.

- Firstly, in alleviating the challenges related to inappropriate handling tools the government through ministry of industries and trade as well as the private sector should provide sufficient handling tools for facilitating transportation for fruits and vegetables. This can be done through credit arrangements.
- Both government and private sectors should sensitise the transportation sector, to invest in the transportation in terms of operating adequate number of modern tracks for transporting fruits and vegetables considering that the current number of tracks is inadequate.
- Moreover, in order to alleviate the challenge of poor road network and connectivity, government of Tanzania through TANROADS and TARURA should construct and improve interior and feeder road in the rural cultivating areas.
- In order to alleviate challenges of corruption and bribery responsible authorities such as PCCB and police should effectively address the problems of corruption and bribery among the road traffic police and revenue officers.
- To alleviate problems related to financial constraints, government and private financial institutions such as Banks and microfinances should be sensitized to initiate low interest loans arrangement for farmers and intermediaries so as to enable them buy appropriate handling facilities and effectively facilitate transportation in urban areas.
- On the other hand, government should minimize tax rate and different kinds of charges for distribution of fruits and vegetables when they are delivered to the market place in urban areas. This is because the higher the taxes and charges the higher the costs of production and thus causing economic burden to transporters.

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