

# The Economics of Smart Fresh Markets



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# The Economics of Smart Fresh Markets

## Delivering Mass Participation, GDP, Government Revenue, Public Health and Food Security

### Executive Summary

This report presents an analysis of the economics of Smart Fresh Markets (SFMs). It first addresses the current economic situation in Kenyan fresh markets, before presenting the economic improvements arising from making fresh markets 'smart'. By 'smart' we mean modernising existing local markets such that markets become 'restorative and regenerative by design' (Rockefeller Foundation, 2021).

Smart Fresh Markets (SFMs) are defined as integrated, multifunctional markets that are fit to meet current and future food needs. An SFM is a fresh market that is economically, socially, and environmentally sustainable, affordable, supports healthy diets, and uses digital technologies to improve participants' experience.

Food markets in Kenya currently create an estimated \$1.53-1.89b of revenue through produce sales. These figures were derived from three complimentary approaches to calculating market revenue. Based on an estimated 112,500 stallholders, local fees amounting to \$12.15m to \$48.60m per year are paid to municipal governments.

Cess is a levy charged on agricultural trade, which is currently highly inefficient in its application. This report recommends that cess should be levied only once, at the point of sale, and should be proportionate to the price of the relevant commodities. Furthermore, 80 to 80% of cess revenues should be earmarked for reinvestment in bringing down high distribution costs for smallholder farmers.

SFMs would go beyond the existing market functions to include childcare facilities, education and training, street food stalls, and fitness facilities. SFMs are therefore predicted to be associated with 2.6-3.5m jobs nationwide.

SFMs can be designed to promote healthful diets, which could see an increase to GDP of 0.5% annually.

Public-Private Partnerships (PPPs) offer important opportunities to increase investment in SFM supply chains. A number of potential PPP structures exist, including service contracts, management contracts, lease agreements, concession contracts, and Build-Operate-Transfer contracts.

## 1 Introduction

This report presents an analysis of the economics of Smart Fresh Markets (SFMs). It first addresses the current economic situation in Kenyan fresh markets, before presenting the economic improvements arising from making fresh markets ‘smart’. By ‘smart’ we mean modernising existing local markets such that markets become ‘restorative and regenerative by design’ (Rockefeller Foundation, 2021). Markets will become smart by adoption of a range of technologies, such as solar powered cold storage to cut food waste and power low emissions stalls and transport, use of digital technologies to make sales and revenue collection more efficient, improved management of water sanitation and waste, and promotion of new business opportunities. In this report we establish why Kenyan food markets are worth investing in based on their current value to stakeholders and their potential enhance value from making markets smart.

This is Report 2 of a series presented to the Rockefeller Foundation. Report 1 Horizon Scanning for Fresh Markets contains proposed designs and components of an SFM, as well as providing discussion and costs for a selection of SFM components. Report 3 Sustainability Benefits of Smart Fresh Markets analyses the benefits arising from SFMs through a three-pillar model of sustainability, exploring economic, social and environmental benefits of SFMs, and discusses potential co-benefits with other funding opportunities.

Open markets are vital to the food supply in Africa, being the source of food for 90% of the population (Rockefeller Foundation, 2021). They therefore have the potential to be a key intervention point for ensuring sustainable food provision, reducing food waste and providing rewarding employment. This report defines SFMs as integrated multifunctional markets that are fit to meet current and future food needs. An SFM is a fresh market that is economically, socially and environmentally sustainable, affordable, supports healthy diets, and uses digital technologies. Achieving ‘smart’ fresh markets is likely to require improved cold storage facilities, sanitation and waste management, the use of renewable power generation, digitalisation of sales data, improved transport infrastructure, and increased opportunities for additional business creation. Restorative and

regenerative by design, SFMs are likely to provide lower GHG emissions, reduced food waste, greater incomes for smallholders and traders, improved data and revenue collection, improved water and waste management, healthier diets, and more associated employment.

As much of the commercial activity that occurs around fresh markets is conventionally understood as taking place in the informal economy, proven evidence is in short supply. Nevertheless, an intensive search of the relevant global literature on the subject has permitted us to determine - within a margin of error of some 20% - likely produce flows through Kenyan fresh markets. We will explain how we arrived at the figures for a range of fruit, vegetables, and other staple commodities by taking the reader step by step through the calculations and assumptions. We have done this in three ways, namely on a bottom-up basis for each of the relevant commodities in terms of production levels (one way) and consumption levels (second way) and, third, by examining top-down estimates from other analysts. In order to make this work viable, we have selected Kenya as our case study nation. The additional benefits arising from making food markets 'smart' are also addressed herein, though calculating the additional revenues arising from such modernisation is not possible.

Data gathering and analysis as found in Chapter 2 were the main requirements of this study. In Chapter 3 we have gone beyond these requirements in order to analyse revenue streams in proportion to these product flows and related income, principally to local governments. Further to this analysis we examine the current structure of licence and other fee collection around fresh markets while also turning to cess payment structures. We advocate for basic reforms to cess which will make revenue collection more economically rationale and efficient with specific suggestions to advance both SFMs and the interests of smallholder farmers noting their importance to the socioeconomic fabric of the nation. As it is important to gain municipal, county and national governmental support for SFMs, we have also estimated possible revenue streams and other benefits from SFMs.

Then we have proceeded to discuss the employment benefits of our concept of a multifunctional SFM design and the microeconomic activities that can occur around such a multifunctional SFM. This is rounded out with a basic reference to health benefits and the importance of SFMs in directing healthy diets. Finally, in Chapter 4 we have explained some of the specific frameworks for structuring smart fresh market agreements through private public partnerships in contributing to the business arrangements for SFMs.

To the extent that formalisation or digitalisation of smart fresh markets will encourage more transparent sales data and associated Government revenues, we propose that government revenues from the agriculture sector (minus government



administrative costs of 10-15%) be hypothecated or earmarked for initiating, maintaining, or enhancing smart fresh market infrastructure, networks and their further dissemination throughout the country.

As a first step, this report advocates a pilot SFM in order to test our functional and technical innovation models as well as the financial robustness of SFMs as a growing public and private sector service noting the attendant civil society and business opportunities and benefits on offer.

Let us begin with our analysis of potential produce flows through smart fresh markets and potential revenue streams.

## 2 Data Gathering and Analysis

We have performed a top-down analysis based upon existing research and concluded the following: Total market sales of fresh produce (fruit and vegetables) in urban and rural areas of Kenya likely averaged Ksh50 billion, or nearly US\$700 million per year in 2000 prices (Wiersinga & de Jager, 2007).

Here are our concepts for bringing that figure up to date. Starting with the 2000 prices figure and noting crop yields are in line with population expansion, \$700m (2000 figure) + 1.02 (160% agricultural price inflation) multiplied by 1.5 (population expansion) provides for produce sales of approximately \$1.53 billion.

Therefore, we can use \$1.53 billion as a top-down figure and see how that compares with the bottom-up figures that we have produced in the analysis contained in this sub-section.

### 2.1 Methodology for Calculating Market Revenues

We have taken a basket of produce types and estimated sales volumes. From a methods perspective we created a series of assumptions and examined the literature which estimates sales volumes. This is notoriously difficult owing to the informal unrecorded nature of such data. Nevertheless, we believe these estimates to be reasonably accurate in determining commodity flows through fresh markets. We also believe that the pricing data is accurate as it reflects average annual prices for said commodities.

In relation to the produce types, we have examined five commodities that can be available for sale in fresh markets. As wastage is less of an issue when compared to perishable fruits and vegetables, we already reduced quantities of dry grains, tubers and beans by 5% to account for wastage. In addition, we have used different factors and calculations when compared to fruits and vegetables (see next sub-section).

We have used the following steps for each product in order to determine the total amounts and price values for these commodity flows through wet markets. In some cases, additional information has altered the calculations slightly, however, the relevant assumptions are implicit in each calculation step as outlined here:

- a) How much of the product is produced in Kenya per annum (FAO STAT data provides a reliable number which we cross reference and check this across available sources)?
- b) How much of the product is exported (normally very little, no more than 5%)?
- c) How much is sent to Wholesalers (normally 20%)?
- d) How much is sold to the supermarket sector (normally 50% of what does not go to wholesale or export markets)?

Therefore, we can assume that XX tonnes are sold informally at local markets.

- e) What is the price of the product per tonne? (As of the time of writing of the report)
- f) What is the market value of the product that travels through smart fresh markets?
- g) What if government taxed this at a. 1% and b. 5% (akin to but not equivalent to cess)

## 2.2 Grains, Beans and Tubers

Calculated values for selected grains, beans and tubers are presented below. The calculations are presented in detail for maize as an example. The full data for grains, beans and tubers are then presented in tabular form.

### 2.2.1 Kenyan Maize Production and Sale

- a) How much maize is produced in Kenya per annum?

3.8mn tonnes<sup>1</sup>

b) How much maize is exported?

5,000 tonnes, approx. but Kenya appears to be a net importer of maize, mostly from other EA counties.

The amount that is exported seems to be negligible<sup>2</sup>.

c) How much is sent to Wholesale?<sup>3</sup>

An FAO paper (2014) reported that 25-35% of maize that is marketed from medium or large producers is sold directly to the National Cereals and Produce Board (NCPB) of Kenya. The NCPB is a public entity that purchases maize and resells it below the cost of procurement to act as a production incentive. Smallholders, who comprise most maize producers in Kenya, sell 96% of their yields to private traders and brokers, or directly to SFM. NCPB deals in commercial trade of maize and other cereals and provides post-harvest treatment. For the *sake of clarity*, we are going to assume farmers sales to the NCPB will count as “wholesale sales”. Therefore, the 20% estimate of maize produce sent to wholesale is justified.

Roughly 1.14mn tonnes is sold to wholesale (FAO, 2014).

d) How much goes to supermarkets and related shop retailers?

1.33 tonnes

Therefore, we can assume that 1.33m tonnes sold informally at local markets.

e) What is the price of maize per tonne?

\$ 372

f) What is the market value of maize sold through SFMs?

\$ 494mn

g) If government taxed this at a. 1% and b. 5%

a. \$4.94mn

b. \$24.7mn

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<sup>1</sup> This figure is derived from the following source: <https://knoema.com/atlas/Kenya/topics/Agriculture/Crops-Production-Quantity-tonnes/Maize-production>

<sup>2</sup> See the following sources for this conclusion:

<https://www.indexmundi.com/agriculture/?country=ke&commodity=corn&graph=exports>

<https://www.selinawamucii.com/insights/market/kenya/maize-corn-flour/>

<sup>3</sup> Much of this analysis mirrors that for other commodities in terms of figure calculations in this sub-section.

## 2.2.2 Kenya Grains, Beans and Tubers Data

Product	Amount produced (tonnes)	Amount exported (tonnes)	Amount sold wholesale (tonnes)	Amount sold to super markets (tonnes)	Amount sold at fresh markets (tonnes)	Price per tonne	Market value at fresh markets	Potential revenue re a 1% tax	Potential revenue from a 5% tax
Maize	3.8m	5,000	1.14m	1.33m	1.33m	\$372	\$494m	\$4.94m	\$24.7m
Sorghum	206,000	50,000	31,000	87,500	87,500	\$459	\$40.16m	\$401,625	\$2.00m
Millet	84,000	0	21,000	12,600	50,400	\$721	\$36.34m	\$363,400	\$1.82m
Cowpea	180,000	2,000	54,000	11,860	112,140	\$803	\$90m	\$900,000	\$4.5m
Dried Bean	765,000	39,000	-	-	290,400	\$710	\$206m	\$2.06m	\$10.3m

Table 1: Grains, beans and tubers sold in Kenyan markets.

The total value of sales for this basket of grains, beans, tubers is therefore \$868.0 million.

## 2.3 Fruit and Vegetables

As fruit and vegetables have a higher degree of perishability than the grains, beans, peas and tubers we have added a wastage step to our calculations. This also reflects the fact that our data for grains, beans, peas and tubers accounted for the generally minor wastage factor. The FAO food loss and waste database provides percentages which we have used as a reference. If a food commodity is not listed as specific to Kenya, then data from neighbouring countries were used as a reference. If there was lack of any data, then an estimate of 35% was used as this is the average food loss rate globally.

As an example, the calculation method is detailed for tomatoes below. The full data for fruits and vegetables are then presented in tabular form below.

### 2.3.1 Tomato Production and Sale

600,000 tonnes of tomatoes are produced in Kenya per annum.

Accounting for food waste (50% on average of tomatoes perish)  $600k \times 0.50 = 300,000$ .

Accounting for export and wholesale (assuming 5% of tomatoes are exported and 20% go to wholesalers):  $300k \times 0.75 = 225,000$ .

Accounting for supermarket supply (30% of tomatoes are sold through supermarkets and shop retailers):  $225,000 \times 0.70 = 157,500$ .

Hence, 157,500 tonnes are sold at local fresh markets.

Product price per tonne =  $\$484 \times 157.500$  tonnes.

Market value of tomatoes =  $\$76.2\text{mn}$

### 2.3.2 Kenya Fruit & Vegetable Data

Product	Amount produced (tonnes)	Food Waste (tonnes)	Amount exported (tonnes)	Amount sold wholesale (tonnes)	Amount sold to supermarkets (tonnes)	Amount sold at fresh markets (tonnes)	Price per tonne	Market value at fresh markets
Tomato	600,000	300,000	15,000	60,000	67,500	157,500	\$484	\$76.2m
Cabbage	674,000	202,000	23,590	94,360	106,155	247,695	\$189	\$46.8m
Spinach	169,356	50,807	5,927	23,710	26,674	62,238	\$270	\$16.8m
Carrot	239,019	95,608	7,171	28,682	32,268	75,291	\$202	\$15.2m
Cassava	946,076	331,127	30,747	122,990	138,364	322,848	\$273	\$88.1m
Avocado	233,933	93,573	56,144	28,072	16,843	39,301	\$265	\$10.4m
Potato	1.9m	665,000	61,750	247,000	277,875	648,375	\$482	\$312.5m
Sweet Potato	870,000	348,000	26,100	104,400	117,450	274,050	\$300	\$82.2m
Sukuma Wiki	431,676	129,503	15,109	60,435	67,989	158,641	\$200	\$31.7m
Onion	126,515	50,606	3,795	15,182	17,080	39,852	\$700	\$27.9m
Pineapple	350,000	140,000	11,375	45,500	51,188	119,438	\$500	\$59.7m
Watermelon	188,793	37,759	7,552	30,207	33,983	79,293	\$300	\$23.8m
Banana	1.4m	700,000	35,000	140,000	157,500	367,500	\$500	\$183.8m
Mango	775,000	465,000	15,500	62,000	69,750	162,750	\$180	\$29.3m
Papaya	131,456	52,582	3,944	15,775	17,747	41,409	\$357	\$14.8m

Table 2: Fruits and vegetables grown in Kenyan fresh markets.

## 2.4 Converging Results for Fresh Market Sales

Based on sub-section 2.3, we find a total for this basket of fifteen fruits and vegetables equal to \$1.02 billion. Added to the total value of sales for the basket of five grains, beans, tubers (\$868.0m) we get a sum of \$1.887 billion. This is not far from our initial top-down estimate (validated with existing reference sources) of

\$1.53 billion. However, there are other commodities that could be usefully added to the existing basket of commodities the values of which we have already calculated. It is also somewhat supportive of these figures that in 2015 the supermarket and food store retail market accounted for \$1.3 billion in sales. With an 8% population rise and inflation of 30% over the past five years this amounts to \$1.82 billion in 2020. Noting the average 75%-100% mark ups on supermarket produce prices and formal (supermarket and other retail shop) to informal market share ratios (30% to 70%) these figures are not out of line with informal market revenues. They also happen to converge around some reasonably consistent amounts.

This convergence approach can be validated and supported through a further method which focuses upon consumption of agricultural commodities.

According to the FAO, agriculture contributes 26 per cent of the Gross Domestic Product (GDP) and another 27 per cent of GDP indirectly through employment linkages with other sectors related to food provision for Kenyans (FAO, 2021). If we move the analysis forward, then we can derive mean monthly incomes and determine likely expenditure on food items. Household produce purchases in rural areas are 400 Ksh and in urban areas 1000 Ksh per month (2007). This discrepancy is owed to the fact that 90% of rural households also grow their own produce. Adjusted for inflation (since 2007) these figures represent 1,040 Ksh per month and 2,600 Ksh per month. When converted to dollars per year the figures are \$1,248/year and \$3,120/year. The average household size is 3.9 people. The urban population is 31.1% of Kenyans leaving 68.9% living in rural areas. According to UN data, Kenya's total population is 53.7 million people (UN, 2019). Therefore, produce purchases in rural areas are approximately \$1.284 billion per year and \$1.335 billion per year in urban areas. If 70% of these totals are purchased in informal fresh markets, then that constitutes \$1.832 billion in produce sales per year.

Hence, the three figures that we have obtained are \$1.832 billion (based upon household expenditure analysis), \$1.887 billion (our adjusted production for fresh market sale values) and \$1.533 billion (our original top-down estimate). What is striking in particular is the closeness of the household expenditure analysis and production for fresh market sales figures which are only \$55 million apart (i.e., only 2.9% apart).

## 2.5 The Digital Technology Effect on Fresh Markets

We have referred to the potential positive impact of digital technologies, specifically feature phones and smart phones on price dynamics in the agricultural sector. The literature is still somewhat anecdotal in this field. However, there are some noteworthy studies that suggest economic benefits around digital technology innovation and market commodity prices. Jensen (2007) has studied the effect of the incremental introduction of mobile phone coverage on agricultural markets in

developing countries. Jensen learned that consumer prices declined by 4%, consumer surplus increased by 6% and producers' profits increased by 8%. The dynamics there is one where fishermen but more readily spot regional demand opportunities and could fill that gap as a result of the mobile phone network. With respect to grain prices Aker (2010) around a 10% reduction in the dispersion of grain prices noting that has more perfect price information could be found across the country through mobile phone use, prices became more consistent. As traders were in the best position to move grain around the country in order to take advantage of demand. Then opportunities in various regions they saw average daily profits increased by 29% per year.

Muto and Yamano (2009) focused upon farmers' market participation rates rather than market efficiency. Accordingly, they found a 10% increase in market participation of farmers in relation to banana provision. This increase participation act further in communities where farmers were further away from district centres.

A study by Kirui et al (2013) found that among the 52% of Kenyan smallholder farmers that adopted mobile money technologies for their businesses household agricultural commercialization increased by 37% and household farm incomes by \$224 per year. A study in India further confirmed that farmers using mobile phones for connecting with markets and getting agricultural information were getting better prices and reported increased yields (Mittal and Mehar, 2012). Further to this point, a recent study by Quandt et al (2020) found positive correlations between mobile phone use and agricultural productivity (including maize yields) at the household and farmer levels. The results also demonstrated that most farmers had positive perceptions of mobile phone use in relation to increasing agricultural efficiency through increasing profits (67%), decreasing costs (50%), and decreasing farming time (47%) (Quandt et al, 2020).

A 2019 study in Kenya also revealed the greater use of smart phones for access to technical agricultural knowledge and climate change knowledge both of which are attached to agricultural productivity and risk reduction measures in increasingly climate change precarious growing seasons (Krell et al, 2019). The availability of such mobile digital services assisted those that could afford smart phones<sup>4</sup>. This does

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<sup>4</sup> According to Schneider there are five identified uses for feature phones and mobile phones: 1) Access to market prices: Mobile phones allow farmers to gain access to vital information about prices of crops before they travel long distances to markets. Cell phone services employ SMS text messaging to quickly transfer accurate information about wholesale and retail prices of crops, ensuring farmers can negotiate deals with traders and improve their timing of getting crops to the market. SokoniSMS64 is one popular service used in Kenya to provide farmers with accurate market prices from around the country; 2) Micro-insurance: Cell phones are also used for a "pay as you plant" type of insurance. Kilimo Salama, meaning "safe agriculture" in Swahili, is a micro-insurance company that protects farmers against poor weather conditions. The insurance is distributed through dealers who utilize camera phone technology to scan and capture policy information through a code using an advanced phone application. The information is then uploaded to Safaricom's mobile cloud-based server that administers policies. Farmers can then receive information on their policy, as well as payouts based on rainfall, in SMS messages. This is a paperless, completely automated process; 3) iCow from M-Farm: This cell phone application calls itself "the world's first mobile phone cow calendar." It enables farmers to keep track of each cow's individual gestation so farmers never miss the valuable opportunity to expand their herd. iCow also keeps track of feed types and schedules, local veterinary contact information, and precise market prices of cattle; 4) Instant weather information: Mobile technology provides farmers with crucial weather data

not mean that even poor smallholder farmers can yet benefit from smart phone technology as a \$50 phone can equate to two months of income though smart phone prices are coming down on a regular basis. According to Techpoint a \$20 smart phone is now available<sup>5</sup>. This should get us close to universal availability within a short while.

From a social perspective, mobile phone technology on a trading platform known as “TruTrade” sources markets and shares price details with rural farmers. Farmers are paid directly for their crops via credit transfer to their phone. This has resulted in better price, more buyers and greater market access especially for women to bring their produce to fresh markets.

As Raima, a woman broker with TruTrade noted “women were often nervous about going to the market or to the depot, as they were afraid that they might be ambushed and robbed when returning home with cash in hand to the village. However, as TruTrade was operating without cash, and the money was secure on their phones, the risk of robbery was significantly reduced.”<sup>6</sup>

In summary, though the effects of mobile phone technology, mobile phones and the internet on developing country agriculture have been debated and remain uncertain (Evans, 2018) as to conclusive, universal empirical outcomes evidence to date suggests a minimum 5-10% reduction in commodity prices particularly when producers that supply fresh markets adopt such technologies.

## 2.6 Smallholder Farmer Supply to Fresh Markets

In Kenya, agriculture is dominated by smallholder farmers. They account for roughly 75% of the total agricultural output and 70% of the marketed agricultural produce. Smallholder farmers are therefore key actors in fresh markets as the main commodity producers for these markets. Traditionally, crops, livestock etc. were farmed for home use, i.e., grown to be consumed by the smallholder household. Though Kenyan smallholder farmers now account for some 70% of marketed agricultural produce sold they still consume part of what they produce and are still net purchasers of a few staple foods such as maize. As such, home consumption

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so they can properly manage their crops. Programs such as Tigo Kilimo in Tanzania give small-scale farmers instant weather information combined with appropriate agricultural tips; and, 5) CocoaLink: This app makes use of western Ghana’s rapidly expanding mobile network to deliver important information to cocoa farmers. The World Cocoa Foundation created this program to provide free voice and SMS text messages about farm safety, child labor, health, and improvements in farming practices, crop disease prevention, and crop marketing. Farmers receive messages in English or their local language.

<sup>5</sup> See: <https://techpoint.africa/2019/03/01/sub-50-smartphone-for-africa/> re the \$20 Orange “Sanza” smart phone

<sup>6</sup> Dorothy Jacob (2018) “Farmers using mobile phones in the fight against poverty and hunger across Africa” accessed in February, 2021: <https://developmenteducation.ie/blog/2018/10/farmers-using-mobile-phone-in-the-fight-against-poverty-and-hunger-across-africa/> .



figures on self-grown produce does not form part of our approach for calculating commodity values for fresh markets.<sup>7</sup>

### 3 Why Should Governments, Investors and other Stakeholders Support SFMs as a Business Model?

#### 3.1 Employment in Agriculture

Given the enormity of employment figures in agriculture and its contribution to GDP it is worth examining approximate employment participation rates in and around SFMs. 49% of the informal sector (in urban areas) are employed or otherwise involved in food vending. The urban informal sector recorded higher mean monthly incomes of 195.8 USD compared to 77.9 USD in the rural areas.

According to the Kenya National Bureau of Statistics the country has a large and burgeoning informal sector, which generated 83.6% of total employment in 2018 and 33.8% of GDP in 2015. With 31 million working age people (World Bank, 2019) representing 83.6% of employment that constitutes 25.9 million people working in the informal sector. If 49% in urban areas and 70 % in rural areas are employed or otherwise involved in food vending that constitutes an employment sector of approximately 16.44 million people working around informal fresh market economies, kiosks and small shops of which a residual amount is involved in export markets. This represents significant consequential personal and commercial income streams all of which advance the well-being of affected Kenyans that deliver or receive food products. In order to understand the boost in employment from turning current fresh markets into smart markets we develop our analysis to address this factor in sub-section 3.4 (below) with promising results for new jobs that will arise with the transition to SFMs.

As well there are government charges, levies and cess-related revenues pertaining to government services related to SFMs, kiosks and upstream actors in the food supply chain from farm to mealtime, so to speak. With such revenues earmarked to advance the lives of smallholders and their families as well as the infrastructure and related innovation measures to advance smart fresh markets, the results should be remarkable.

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<sup>7</sup> For more information in this regard please see:

<http://documents1.worldbank.org/curated/en/294711467992513646/pdf/97887-REVISED-WP-P148139-PUBLIC-Box393257B-Kenya-Agricultural-Sector-Risk-Assessment.pdf>

A similar story is available in respect of youth employment. Further to the Kenyan Ministry of Agriculture’s Kenya Youth Agribusiness Strategy<sup>8</sup>, value-added agroprocessing strategies align with our Multifunctional model for SFMs will allow Their complementary aims are:

- To increase utilisation of agricultural products through value addition.
- Improved access to affordable suitable output markets for youths.
- Support implementation, reviews and development of policies that create an enabling environment for youth in agri-preneurship; and,
- Promote youth-inclusive climate smart agricultural technologies and create green jobs for environmental sustainability.

As such, agroprocessing strategies linked to the transformation of informal markets to SFMs have the potential to add a minimum youth 300,000 jobs (annually) that are not currently being taken up due to employment market shortages (Kenyan Ministry of Agriculture, 2017) (also see sub-section 3.4 of this report for an illustration of the size and nature of employment opportunities available to all, including youths).

There is an important gender dynamic pertaining to these 16.44 million food producers, virtually all of whom are farmers (87% are smallholder farmers) involved in the production of the nation’s major commodities and livestock (FAO, 2019). The following gender split in agricultural roles was indicated as of 2010:

Task	Male (%)	Female %
Ploughing	55	45
Weeding	49	51
Harvesting	51	49
Marketing	53	49
All processes	47	53

Table 3: Gender distribution of agriculture tasks. Source: NALEP, 2010 cited by Onyalo, 2019.

In this regard, it is notable that In Kenya, women spend up to 16 hours a day doing housework, caring for children and preparing food at the same time as – rather remarkably - growing between 60 and 80 percent of the food for the family (Fagley, 1976 and World Bank, 2014). In effect, women are the dominant gender in the agricultural sector. This is at least one reason that gender-based policies should inform SFM business organisation and management. They are also the dominant

<sup>8</sup> Accessible at: <http://extwprlegs1.fao.org/docs/pdf/ken171450.pdf>.

gender acting as traders and stall holders in the SFM economy. As such, policies that maintain and enhance their food supply chain leadership roles - including those related to advancing SFMs - represent a sensible way forward.

### 3.2 Other Revenue Streams from Smallholder Farming and SFMs to Government Bodies

Extrapolating from various studies, the number of market stall traders in Kenya is approximately 112,500. In Nairobi, each stallholder pays an aggregation of licence, stall rent and other municipal fees that range between \$108 and \$432 per year. If this range of annual fees is extended throughout the country, then it represents a total national income stream from SFM stalls of \$12.15m to \$48.60m to municipal governments per year.

Similarly, if we examine the position of kiosks (many of whom are adjacent to SFMs or perform substantially similar selling functions in respect of agricultural produce), we note that while market stallholders sell 56% of produce, kiosks are responsible for 36% of sales. In Nairobi alone there are approximately two million kiosks.<sup>9</sup> When we extrapolate this figure to other urban areas and note food vending employment figures for rural areas this suggests that some kiosk operators can be found across Kenya. If their licence and other municipal fees across the country approximate the lowest level fees for kiosk operators in Nairobi (\$108 per year) then said income stream for municipal governments would be \$3.37 billion per year<sup>10</sup>.

A legal basis for these charges comes in part by reference to the following exemplar table taken from the *Nairobi City County Trade Licensing Act, 2019*. Unless otherwise specified in temporal terms, the table pertains to charges for annual licences for a range of activities.

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<sup>9</sup> Personal Communication with Betty Kibaara, Rockefeller Foundation.

<sup>10</sup> Rural population size is 72.49 % or 38 million people (leaving urban population size at 27.51% - or 14.4 million people - noting a total population for Kenya of 52.5 million). See <https://tradingeconomics.com/kenya/rural-population-percent-of-total-population-wb-data.html>. Accordingly, if 45% of 49% of urban food vendors sell from kiosks and approximately 65% of 70% of rural food vendors sell from kiosks then there are 6.48 million urban food kiosk operators and 24.7 million rural food kiosk operators then 31.18 kiosk operators across Kenya would be contributing \$3.37 billion in licence fees annually. When digital payments for licence fees are extended beyond smart markets to kiosk operators then this significant government revenues stream is more likely to be realised noting the most kiosk operators are currently part of the informal economy.

Item Description	Unit of Measure	Charges (Ksh)
Hire of Open Space at ward level	Per day	7,000
Hawkers (outside C.B.D.)	Per day	30
Hawkers	Per month	500
Kiosks - Small	Per week	25
Kiosks - Medium	Per week	350
Kiosks - Large	Per week	550
Firewood Traders	Per day	200

Table 4: Open space. Hawker service charge. Formal Sector. Source: Nairobi City County Trade Licensing Act 2019.

Item Description	Unit of Measure	Charges (Ksh)
1 hawker with motor vehicle on a designated area	Per annum	15,000
1 hawker without motor vehicle	Per annum	7,000
1 vendor at Uhuru Park	Per annum	5,000
Small informal sector trader/service provider (e.g. shoe shiner, street vendor)	Per annum	2,500
Semi-permanent informal sector trader – up to 2 persons in verandah or temporary building	Per annum	3,500
Other informal sector	Per annum	2,000

Table 5: Small trades service charges. Informal Sector. Source: Nairobi City County Trade Licensing Act, 2019.

What are other possible revenue streams to Government bodies? Further to the Nairobi City County Trade Licensing Act, 2019, hawkers are required to pay annual municipal charges of \$60 and this can go up depending upon complementary transport modes (add \$10 for those with motor vehicles and another \$80 for selling in certain designated areas). Hawkiers are known to sell some agricultural commodities. However, their numbers are uncertain on the date of writing.

As well, these fees apply to other participants in the agricultural supply chain that serve SFMs and kiosks:

Supply Chain Participant	Charges (Ksh)
Mega agricultural producer, processor, dealer, exporter with over 60 employees	100,000
Large agricultural producer, processor, dealer, exporter with 36-60 employees	80,000
Medium agricultural producer, processor, dealer, exporter with 11-35 employees	40,000
Small agricultural producer, processor, dealer, exporter with 4-10 employees	25,000
Other agricultural producer, processor, dealer, exporter with up to 3 employees	20,000

Table 6: Supply chain participant charges. Source: Nairobi, City County Trade Licensing Act, 2019.

Finally, there are fees to be earned from the transport sector in respect of moving agricultural commodities to SFMs and kiosks as follows:

Supply Chain Participant	Charges (Ksh)
Mega transport company: Over 50 vehicles and/or premises over 1000 sq. m	160,000
Large transport company: 30-50 vehicles and/or premises of 500-1000 sq.m	100,000
Medium transport company: 6-30 vehicles and/or premises of 300-500 sq.m	36,000
Small transport company: 2-5 vehicles and/or premises of 50-300 sq.m	25,000
Other transport company: 1 vehicle and/or premises up to 50 sq.m	15,000
Independent transport operator: 1 vehicle / 1 Taxi and not in an office	7,000

Table 7: Transport Company Charges. Source: Nairobi City County Trade Licensing Act, 2019.

The same applies to storage and parking facilities including but not limited to those found on site in proximity to SFMs and kiosks:

Facility	Charges (Ksh)
Large cold storage facility: Over 1,000 sq.m	70,000
Medium cold storage facility: From 101 – 1,000 sq.m	30,000
Small cold storage facility: Up to 100 sq.m	15,000
Large storage facility: Over 5,000 sq.m go down / warehouse liquid storage tanks complex	60,000
Medium storage facility: From 1,000 – 5,000 sq.m	30,000
Small storage facility: Up to 1,000 sq.m	15,000
Large private vehicles parking: Capacity over 100 vehicles	500,000
Medium private vehicles parking: Capacity 51 – 100 vehicles	300,000
Small private vehicles parking: Capacity 1 – 50 vehicles	200,000

Table 8: Storage and Parking Facility Charges. Source: Nairobi City County Trade Licensing Act, 2019.

It is to be noted that where a private operator of an SFM wishes to operate a market on government land then there will also be benefits to the public purse in the form of a land lease and relevant licencing revenues.

The following table that we have generated provides market charges and Cess from selected revenues from a list of the 20 most populated counties. Data sources for these charges were found in County Finance Acts. The righthand column provides total revenue from market fees and cess per annum, where obtainable:

County	Market fees / service charges (Ksh / UoM)	Cess (Ksh / UoM)	Total fees (Ksh)
Kiambu	Hawker fees revenue= 60m KSH Other market fees revenue= 90m KSH	Agriculture Cess revenue total= 35m KSH	Market fees= 150m Agriculture Cess= 35m
Nairobi	Cabbages 1000 / mt. Green maize 50 / 90 kg.	Maize 70 / 90 kg. Onions 80 /bag	Wakulima market, which is a single farmers market in Nairobi = 243m
Kakamega	Prices broken down into rural, urban and town areas. Cabbage 70-100 / bag	Coffee, Tea, Maize, Cess, Milk, Fish, Sugarcane in percentage of market price: 1%	Agriculture cess= 253m

Mombasa	All Cereals – Rice, Beans, Cowpeas, Millet, Sorghum, wheat, Dry Maize, etc 64/ 51– 90 kg.	Maize 64 / 90kg More commodities mentioned in the Kenya Market Trust paper	Hawking fees=162m
Bungoma	Maize 80 / 90 kg	Maize cess 1% of turnover for large or medium trader. Small trader 20 / 50 kg.	Market fees= 37m Crop cess= 33m
Kisumu	Maize 100 / sack urban area 50 / sack rural area.	Maize, tomatoes, onions= 50-60 / 50-90 kg. Fish 2 / fish Cattle & sheep = 30 / head.	Market fees= 75m
Nakuru	Maize is reported as per contract, so the rate depends on the type of contract the seller has with the stall owner or municipality government.  Livestock is reported 50 / PH sheep/goats/pigs 10 / PH poultry 100 or higher / PH for cattle or exotic animals.	Maize and other grains 1% of turnover for large or medium trader. 20 / bag small trader  Fish 100 / 20kg	Market fees= 141m
Uasin Gishu	Full bag of maize, cabbage, onion= 30. Tomatoes, avocados, mangoes= 50	Maize, dairy, 1% of turnover for large or medium trader. 30 / bag small trader.  Cattle and sheep 20-30 / per head.	Market fees= 16.6m Cess (wheat, maize, sugar) = 15m
Meru	Millet, maize, cowpeas and most other grains 20 / 50 kg.  Fruit and vegetables between 20-40/ kg.  Poultry 20 / head Cows, sheep pigs 50 / head	Sheep / goats / pigs 20-30 / head  Cess from crop: 1% turnover.	Market fees=44.6m

Kilifi	Market fee for stall owners, of 15 KSH per day or 400 KSH per month.  Auction fee for cattle 200 / head	Bag above 50 kg 30 Bag below 50 kg 15	Market fees= 18.4m
Machakos	Beans, peas and grains= 30-60 / 90 kg  Vegetables= 20-60 / 90 kg  Fruits= mostly 50 / bag Cattle, donkey, camel= 80 / head Goats, sheep, pig= 30 / head	No data available.	Market fees=45m
Kisii	Maize= 40/90kg Fruits= 50/90kg Potatoes= 40/90kg Fish= 50/90kg Cattle= 100/ head Goat= 50 / head	1% on agricultural produce.	Market entrance fees= 61m
Narok	Grains, most vegetables 50/ 90 kg Dry fish 50/ 90 kg  Cattle 200/ head Pigs/goats 100 / head	Cattle 100 / head Sheep/ goats 50/ head Dairy cess 0.5 %  (No data on grain/fruit / vegetables)	Market and slaughter fees=9m
Kitui	Maize, peas, beans etc 50 / 90kg Cattle / donkey 100 / per head Goat / sheep 40 / head Cabbage 60 / 9kg	Green vegetables 20/90kg Local mangoes 20/90kg	Market fees = 42m
Homa Bay	Maize, cabbage, most root vegetables 50 per bag Mangoes and most other fruits 50 per bag	50/ 90 kg bag maize Onions 70/bag Tomatoes 80 per crate Kales 30/sack	Grain cess= 15m Market dues= 34m
Kajiado	Market fees vary depending on which market the produce is sold at. Generally:	Fruits 50/ crate Cabbage 50/sack Sorghum / millet / maize 80 / sack Tomatoes 70/crate Poultry 20 / head	Market fees= 39m Produce cess=11m



	Cabbage, fruits, maize, tomatoes root vegetables 60-100 / bag		
Migori	Most vegetables including cabbage, onions etc 50 / bag. Tomatoes 60 / crate Maize 50 / bag Most fruits 40 / crate	Per cow 200 Per goat / sheep 50 Per pig 100  (No data on grains or vegetables)	Market dues= 45m Maize / potatoes cess= 11m
Murang'a	Most vegetables e.g. onions, tomatoes, cabbage etc 50/ bag Maize and grains 50 / bag. Note: Most recent data available from 2013, so rates may have increased.	Agriculture produce cess 1%	No data available.
Siaya	Most grains and peas/ beans 80 / sack  Cabbage, tomatoes, onions varied but between 40-80 per sack  Root vegetables 60/ sack  Cattle 100/ head Sheep 50	Fish 2/kg Agricultural cess 1%	Market fee= 23.6m
Trans Nzoia	Most vegetables, fruits, grains 30 / bag.  Maize 50/ bag	2% market value most produce. Maize 30 / 90 kg Cattle 30 / head Goat or sheep 20/ head.	Market fees = 25m

Table 9: Market fees and Cess in selected counties

Further to these data gathering and analysis efforts the table below reports further data on Cess and market fees for 8 counties (see far right column):

County	Land rates	Building permits	Business licenses	Liquor licenses	Parking fees	Advertisement fees	Sub-total	Total	Significant other sources
Embu	13.8m (6%)	4.2m (2%)	63.1m (29%)	0.0m (0%)	27.7m (13%)	0.9m (0%)	109.7m (51%)	217.1m (100%)	Cess (45m), market fees (20m)
Kericho	13.3m (7%)	0.3m (0%)	37.6m (20%)	1.3m (1%)	32.5m (18%)	2.1m (1%)	87.1m (47%)	183.9m (100%)	Health fees (42m), market fees (28m)
Kirinyaga	42.0m (11%)	4.1m (1%)	99.9m (26%)	44.5m (11%)	19.8m (5%)	3.6m (1%)	213.8m (55%)	390.4m (100%)	Health fees (84m), market fees (42m)
Kisumu	144.5m (14%)	42.7m (4%)	96.9m (10%)	10.9m (1%)	206.9m (21%)	60.8m (6%)	562.7m (56%)	1,004m (100%)	Health fees (246m), market fees (75m), rents (44m)
Kwale	53.7m (24%)	2.1m (1%)	55.0m (25%)	0.0 (0%)	11.1m (5%)	12.9m (6%)	134.7m (61%)	221.0m (100%)	Royalties/cess (27m), health fees (26m), auction/market fees (12m)
Machakos	159.8m (13%)	224.7m (18%)	180.4m (14%)	49.3m (4%)	79.2m (6%)	0.0m (0%)	693.4m (55%)	1,259m (100%)	Quarrying/sand (319m), health fees (91m), rent (50m), market fees (45m)
Makueni	6.7m (3%)	4.7m (2%)	65.5m (30%)	32.7m (15%)	25.8m (12%)	4.1m (2%)	139.5m (64%)	219.1m (100%)	Market fees (34m), cess (15m), sand harvesting (5m)
Nairobi	2,253m (20%)	1,361m (12%)	1,776m (16%)	0.0m (0%)	1,975m (18%)	720.0m (7%)	8,084m (73%)	11,006m (100%)	General miscellaneous (1.6bn), rents (284m)

Table 10: County revenues for selected counties.

In summary, for 24 of the more populous (out of 47) counties in Kenya, \$17.18 million in revenues are collected in cess and market fees annually from SFMs. Other revenue streams from land leasing, building permits, business licences, parking fees and advertising fees are not included in this revenue stream calculation. Equally revenues from street sellers and kiosk sellers of food commodities are not included in this sum. These additional fee-income-earning opportunities are significant noting the vast number of SFMs, street sellers and kiosk sellers of food commodities in Kenya.

It is worth noting in particular that parking fees and land rates have notable, additional revenue streams. Parking and land rental rates around SFMs should also take account of possible land lease and parking revenues (the proportions of which are not indicated by reference to this table).<sup>11</sup>

<sup>11</sup> Here is a further useful paper on TOTAL Kenyan national revenues from market prices and cess: [https://www.researchgate.net/publication/340022807 Revenue Streams that Maximize Revenue in Kenyan Counties](https://www.researchgate.net/publication/340022807_Revenue_Streams_that_Maximize_Revenue_in_Kenyan_Counties)

### 3.3 CESS and Agricultural Commodities

Cess on agricultural commodities is understood as a government levy on agricultural trade. It is an important source of revenue to Kenyan municipal governments. It is meant to improve production and distribution of said commodities. According to an important Kenya Market Trust study of Cess in Agriculture (2016) cess of this kind variously accounts for between 7% and 29% of the distribution costs of agricultural commodities. As these distribution costs can vary between 100% and 200% on top of the prices paid to smallholder farmers for their produce, this levy structure can comparatively account for 14% to 58% of their farm incomes. What is more, the production and distribution improvements for which cess is earmarked are often not known to occur. Do these circumstances make sense in a nation where just under a majority of people live under the poverty line and most people rely upon informal, unregulated food markets for their daily meals? Let us examine the cess system a little more closely.

#### 3.3.1 Getting a Fair Deal for Smallholder Farmers: Tomatoes, Onions and Kales

During peak seasons, a crate of tomatoes could cost as low as Ksh 500 while in off peak seasons, the same crate could cost as high as Ksh 3500. The selling price could be as low as Ksh 1500 per crate in peak seasons and as high as Ksh 6000 per crate in off peak seasons. Among distribution costs, 45% covers transport and packaging cess is 15% and market levies are 7%. So, smallholder farmers are receiving between 33% and 58% of the tomato purchase price for their labour by reference to this analysis of distribution costs.

For onions, purchase prices range between Ksh 500 and Ksh 2000 for 14-kg bag (net) while the selling price ranges between Ksh 1500 and Ksh 3000 dependent on season. For distribution costs, 45% covers transport and packaging cess is 29% and market levies are 8%. So, smallholder farmers are receiving between 33% and 67% of the purchase price for their labour efforts by reference to distribution costs.

Finally, the purchase price of 90-kg bag of kales was reported to vary widely, from as low as Ksh 200 to as high as Ksh 2500. The sale price was reported to range from Ksh 2000 to Ksh 3500. For distribution costs, 64% covered transport and packaging cess was 10% and market levies were 6%. Therefore, smallholder farmers are receiving between 10% and 71% of the purchase price of their labours by reference to distribution costs.

In addition, while market levies were relatively stable at 6-8% of distribution costs, cess varied between 10 and 29% of distribution costs. This would suggest that the uneven application of cess bears little resemblance to the production cost or the market value of the relevant commodities. This anomaly probably requires some consideration towards reform and harmonisation of cess for commodities.

What's more, there is a disconnection between smallholder farmers in rural areas and the markets that their produce is sold in. They are therefore reliant on traders who purchase their goods and then transport and sell them at the markets to vendors. This dynamic is limiting for smallholder farmers for several reasons. Firstly, there are proportionately far more farmers than traders, which hinders the smallholders bargaining power as competition drives prices down with fewer traders available than farmers. Additionally, smallholder farmers have little knowledge of or control over the price fluctuations that have been mentioned previously in this section, whereas traders have access to this information. This asymmetric information scenario results in producers generally having to take the best price offered to them by traders. There are also reports of traders under-weighting produce either because they have inaccurate scales or deliberately do so. These factors add to the burden of uneven cess costs and hamper the development of rural smallholders.

There are solutions to these challenges. Minimal business skills will open the eyes of Kenya's food producers to the opportunities that come from delivering directly at fresh markets. Cooperatives or farm associations could work with farmers in order to provide all that is needed to get produce to market at much reduced costs. What's more, as digital platforms and smart phone technologies merge to deliver needed information to farmers (indeed all key stakeholders) about local market prices, demand, and diversified customer base selling opportunities through fresh markets all of the interests of market operators, farmers and customers will merge around the provision of healthful, protective foods for all Kenyans.

### 3.3.2 Making Cess for Agricultural Commodities Work Better for All

Currently cess can be charged multiple times for only one commodity sale in relation to the number of counties through which the commodity travels. Ideally, cess should be levied once, probably at the point of sale and should be proportionate to the price of the relevant commodities in line with conventional tax practices for goods in most parts of the world. This is both economically efficient and recognises the value that a producer brings to the market.

Ideally 80-90% (noting that 10-20% administration costs will be internalised by Government) of cess revenues should be dedicated to bringing down high distribution costs for smallholder farmers. Two key targets should be: 1. The rationalisation of transport infrastructure and other distribution charges; and, 2. The transformation of smallholder farmers into business owners trading directly at SFMs, kiosks and/or with wholesalers, supermarkets and small shops in their own right. Perhaps the latter non-SFM/kiosk functions could be satisfied through institutional aggregation of said farmers in farm organisations and cooperatives. This should reduce distribution costs as much as 25% and 50% by reference to the final price of agricultural commodity sales at SFMs and kiosks with resulting savings to go to smallholders, their families and consumers. A five-year target to double smallholder farm incomes through cess reform targeted at direct smallholder participation in SFM, kiosk and other retail roles would be a modest, achievable programme goal in this regard.

It is noted that these reforms would not necessarily reduce revenues to Government bodies from cess. In the medium term it may well enhance them as other distribution costs are reduced or removed with the commercialisation of smallholder farming noting the immediate benefits that would bring to millions of smallholder farmers and their families. Digitalisation and automation of cess collection would also improve the efficiency of government revenues by reducing leakage and reducing administrative costs of tax collection. Such a popular set of policies would no doubt reward political leaders and actors that support and implement such policies at the ballot box noting the tangible social welfare gains for millions of voters. In the fullness of time cess may also support the modernisation and digitalisation of informal markets and kiosks as they transition to smart fresh markets.

### **3.4 Direct and Indirect Employment in and Around Smart Fresh Markets**

The agriculture sector contributes approximately 51 percent of Kenya's GDP (26 percent directly and 25 percent indirectly) and accounts for 60 percent of employment and 65 percent of exports. These figures speak to the macroeconomic dominance of agriculture in Kenya and the associated importance of fresh markets as the predominant retailer of the food on Kenyan tables at mealtime. Direct and indirect employment in and around fresh markets and kiosks is to be measured in

the millions<sup>12</sup>. Information on actual and potential direct and indirect livelihood opportunities and positions is found in this section (3.4).

Among potential areas of indirect employment for a single fresh market buyers, traders and wholesalers constitute relevant categories. Across fresh markets overall, the most commonly cited number of traders was 100, with about 27% of the responses indicating a number between 15 and 30 and 42% quoting a figure of 50-100<sup>13</sup>. Hence, it is possible for 100 traders to sell to a single market. In relation to the role of vendors and kiosk owners: This varies considerably from market to market. A vendor or owner could run a single stall or multiple stalls. As it happens City Park Market in Nairobi typically has approximately 279 different vendors selling the most popular produce<sup>14</sup>. This suggests both healthy competition and a wide and varied approach to product sales for each stall.

Not all local markets are solely fresh markets. In some cases, there are integrated commercial shop owners (locally made cooking utensils, clothing etc.). The Mitumba markets are essentially “flea” markets offering all manner of household goods that feature in domestic life. Again, numbers vary from a single stall to massive marketplaces with hundreds of vendors. For another relatively unique example, the Maasai market in Nairobi sells a range of Maasai-specific cultural goods alongside domestic staple products<sup>15</sup>. In summary, though most fresh markets specialise in fresh foods and food commodities there are many variations on this theme and no one size fits all fresh markets.

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<sup>12</sup> For more on the figures, see the following sources:

[https://assets.publishing.service.gov.uk/media/5c70028ee5274a0ecbe9a1c2/483\\_Agricultural\\_Productivity\\_in\\_Kenya\\_Barriers\\_and\\_Opportunities.pdf](https://assets.publishing.service.gov.uk/media/5c70028ee5274a0ecbe9a1c2/483_Agricultural_Productivity_in_Kenya_Barriers_and_Opportunities.pdf)

<https://www.pasgr.org/wp-content/uploads/2017/08/Employment-creation-in-agriculture-and-agro-processing-sector-in-Kenya-in-the-context-of-inclusive-growth.pdf>

[https://www.researchgate.net/publication/340080838\\_The\\_interplay\\_between\\_traders\\_products\\_and\\_customers\\_in\\_fresh\\_produce\\_business\\_establishment\\_and\\_operation\\_in\\_Nairobi\\_City\\_Park\\_market\\_Kenya](https://www.researchgate.net/publication/340080838_The_interplay_between_traders_products_and_customers_in_fresh_produce_business_establishment_and_operation_in_Nairobi_City_Park_market_Kenya)

<sup>13</sup> See: <https://ideas.repec.org/p/ags/egtewp/202597.html>

<sup>14</sup> See:

[https://www.researchgate.net/publication/340080838\\_The\\_interplay\\_between\\_traders\\_products\\_and\\_customers\\_in\\_fresh\\_produce\\_business\\_establishment\\_and\\_operation\\_in\\_Nairobi\\_City\\_Park\\_market\\_Kenya](https://www.researchgate.net/publication/340080838_The_interplay_between_traders_products_and_customers_in_fresh_produce_business_establishment_and_operation_in_Nairobi_City_Park_market_Kenya)

<sup>15</sup> For more on the Maasai markets and a guide as to what to expect when you are there see:

<https://theculturetrip.com/africa/kenya/articles/a-gift-guide-to-nairobis-maasai-markets/>

### 3.4.1 Employment Opportunities<sup>16</sup>

If we examine direct and indirect employment in the informal market fresh produce agriculture sector, then we find another source of socioeconomic value in the eyes of government and civil society.

When considering possible employment in and around SFMs, there is a need to consider both direct and indirect employment figures and opportunities. It is noted that upstream employment is estimated as five times the employment around the agricultural commodity retail sector. In relation to indirect employment, we have already identified the 16.44 million people working in the informal economy, 87% of whom are smallholder farmers upon whom their families also rely for their living circumstances. Placing aside calculations of upstream producers and suppliers and surrounding employment prior to a commodity's entry for sale in an SFM we are inquiring as to employment opportunities and micro economies to be established on SFM sites.

If we use our example of a multifunctional 21st century SFM for a market featuring 200-300 stalls, akin to a significant update to the established City Park Market in Nairobi (as an example for practical reference purposes), then the following opportunities are revealed as we move from informal markets to SFMs:

**Stall operators** will feature one to two dedicated full-time staff for each stall (200-300 stalls represent 400-600 staff).

**Loading, unloading, carrying, delivery services** for traders and customers are a necessary feature of such markets with full time equivalent service provision estimated at twelve staff noting that digital services will be used to facilitate home or business deliveries.

**Commodity sales and food services** at neighbouring shops, restaurants and supermarkets through a diversified customer chain will add ten to twenty employment positions in respect of these new SFM customers. Our City market example has more than 100 shops in the immediate vicinity of the Market.

**Supply to Schools and Hospitals:** The Aga Khan University Hospital is stationed next to the City Park Market in Nairobi. Increased reliance on fresh produce from local markets offers up the possibility of direct supply to the hospital. With 250 beds, there is potential for the market to provide food for a couple hundred staff members.

There are multiple schools in the area too. Food supply for these types of institutions could benefit the employment of approximately 25 staff members.

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<sup>16</sup> In determining employment opportunities at and in the immediate vicinity of SFM sites, we have relied upon a set of observations and references found at the end of this report and identified as such.

**Cleaning:** This could either be direct employment by the landowner / municipality government or contracted to a cleaning service. There are multiple agencies that can provide this role on a contracted basis (see <https://kisafi.com/>, for example).

Depending on the size of the SFM this could amount to employment of up to a dozen cleaners using the City Market example by way of scale.

**Waste management:** Based on the City Park Market, there could be up to 10 waste management professionals employed in this market. Currently in Kenya, waste management is lacking in urban areas. In Nairobi almost half of solid waste is not collected. Therefore, employment of waste management professionals on site at market is an employment multiplier and addresses waste removal.

**Transport:** Few traders own their own trucks, which are usually rented from transporters, and range in size from five to 18 metric tons. Depending on how much produce is sold at the market, transport demands will vary. Transport is often not shared between different traders as competition is strong and collaboration weak. For a market with 200-300 traders, we can assume there must be at least 100 transporters rented or services provided.

**Infrastructure improvements / construction:** A key limitation of food supply chain development is the lack of adequate infrastructure. For example, storage facilities, proper road transportation especially in rural areas, adequate weather protection in kiosks. These issues also offer up the opportunity for building development projects, which in turn supplies employment. Large development projects, such as the construction of the Konza Technology Park, have been announced in Kenya with \$100m loan funding from the African Development Bank and is expected to provide 80,000 new jobs in the first four years.<sup>17</sup>

Whilst this is a single large-scale project, it can be argued that road infrastructure and other infrastructure projects can provide job opportunities also. For the City Park Market for example, a main complaint was lack of protection during rainfalls or lack of secure flooring. A public private partnership initiative could address how the improvements are funded and implemented. For a large market like City Park Market, which has multiple store owners relying on multiple traders from many different smallholder farms, and considering the strong need for upgrades, this could employ a couple of thousand workers for such a one-off development project.

**Security and facilities management:** Maintenance costs, theft prevention and management and related security provision is very important in a modern market. The employment of at least 10 security and maintenance personnel would assist with ensuring the upkeep of infrastructure in the market, including parking wardens. This could be direct employment, or it could be contracted.

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<sup>17</sup> See for example, <https://www.privacyshield.gov/article?id=Kenya-Construction-and-Infrastructure>



**Researchers and data scientists:** Smart data will provide insight into the functionality of the market. The research conducted by Mcharo & Waswa (2020) into popular goods sold and the seller-consumer relationships in the City Park Market is an example. Depending on the research institution, this could require 4-6 national or international researchers.

**Finance/market info zone** will feature a televisual/social media unit that “markets the fresh market”, calling attention to the market features and advertising on behalf of vendors. Closely aligned with this function is the Campaign Centre which will be devoted to expanding the interests and influence of fresh markets as well as food health, food culture and related sustainability causes throughout civil society. These functions would employ a minimum of four full time staff with an advertising revenue stream that would cover employment costs.

**Food Research & Seed Bank hub** will provide a laboratory and modest seed bank used to research and demonstrate protective foods and related health research opportunities for advancing the roles of fresh market stakeholders. It will be connected to a major university with aligned interests. Employment of two full time staff would be internalised through university grants and resultant commercial spin off firms.

**Solar power area** will be a designated space for on-the-ground solar panels to supply the energy needs of the fresh market, notably cold storage units. They will be fenced off and off-limits to non-authorized personnel. This would require one to two employees to maintain steady energy supply provision.

**Water harvesting/ collection area** will leverage the best available technology in rainwater and ‘ambient-air’ overnight water harvesting in order to satisfy as much of the freshwater needs for the fresh market. This will also include technology that recycles the moisture produced in the cold storage units and channels into collection tanks. This would require one to two employees to maintain this service.

**Chef demonstration area** will bring skilled professionals in to showcase recipe ideas and new cooking techniques to encourage greater participation in the market. A minimum of two on site chefs would be employed for this purpose.

**Street Food / Pop Ups** will provide cooked food dishes representing the produce sold at the fresh market and may have the option to introduce healthful international foods. These street food entrepreneurs would be on-site with a minimum of 6 to 10 such businesses (with an average of 2 staff each) to accompany an SFM scale of 200-300 stalls.

**The creche/day care centre** will provide childcare to empower women to participate in the market activities and therein redress gender inequality present in rural agricultural while enabling social mobility. As stallholders typically comprise 60-80% women, this childcare service will pay for itself with a minimum of three staff employed on a full-time basis.

**Education/ training** will provide the fresh market vendors with workshops on various topics from basic financial skills through to recommendations on growing techniques for different produce and how to combat their respective pests and diseases. This hub will employ people from the existing pool of extension agents, with a view to bring on more practitioners/experts in these fields. A minimum of two employees will be attached to this activity.

**Permanent shop units** will provide a small restaurant, café, produce, meat, fish, bakery, corner shop and related essential shopping services to customers on an extended hour basis to maintain ongoing interest in the fresh market and serve as a point for essentials for consumers unable to visit the market at more typical hours. It is anticipated that there will be a minimum of 12 such businesses with a minimum of four employees on average for each business (approximately 48 staff in total).

**Fitness Facilities** - as diets become Westernised and urbanisation accelerates, people need a place to stay fit as part of the healthy lifestyles that accompany protective food consumption and fresh market community culture. Healthy food lifestyles have a corollary cultural connection to fitness. As such, a fitness centre employing four staff is a sensible function running alongside the SFM.

#### *3.4.1.1 Summary of Aggregate Employment at a Multifunctional SFM with a City Market Size*

If we add the total number of employees that would be linked to a multifunctional SFM with a City Market size, then it ranges between 662 to 876 staff. This would exclude employees linked to transport route infrastructure improvements or upgrading the infrastructure of the SFM itself all of which represent additional employment opportunities.

#### *3.4.2 The Multiplier Effect*

By way of a conclusion to the analysis of expanded employment for a model SFM with a size of 200-300 stallholders (as above), it is worth recalling that similar prototypes could be extended to a majority of Kenya's estimated 112,500 stallholders at informal food markets. This would represent a multiplier effect of some 4,000 times the example given above for a City Market Size SFM (noting the employment and other microeconomic benefits of SFMs) if such a model were rolled out nationally. If the band of employment figures ranging from 662 to 876 is reasonably accurate then this would translate into some 2,648,000 to 3,504,000 jobs in and around the immediate vicinity of SFMs as they replace current informal markets across the nation.

### 3.5 Healthful Diets and Smart Fresh Markets: The Economic Dividend

In relation to costs and benefits to government from the adoption of healthful diets associated with fresh market produce and related protective food consumption, in 2019, the World Bank launched the Africa Human Capital Plan, to boost Africa's human capital—the health, knowledge, skills, and resilience of its people. The World Bank estimates that investments in human capital could result in annual yearly growth of 1.8% of the countries' economies over the next 50 years (World Bank, 2020). A study that investigated health human capital on economic growth concluded that “22% and 30% of the transition growth rate of per capita income in Sub-Saharan African and OECD countries respectively, can be attributed to health” (Gyimah-Brimpong & Wilson, 2004). This supports the claim that improvements to health through improved diets would result in significant economic development. Taken as a logical derivation of these figures and expressed as a percentage of potential GDP growth improvements in human health - of which dietary health is the most important part – 0.5% of annual GDP can occur through the healthy diets that SFMs can be designed to promote. With Kenya's GDP at \$87.91 in 2018 a 0.5% annual rise would amount to an economic boost of \$4.4 billion.

## 4 Structuring the Business, Commercial and Economic Case for SFMs

### 4.1 Introduction

The traditional structure for SFMs is based upon dedicated facilities on public land controlled by local governments who place licence, market stall, service and cess-related fees and levies on traders. In return, government is meant to pay for maintaining and enhancing said local or city markets. However, what we have seen in Kenya and other parts of sub-Saharan Africa is a growing demand and role for private sector participation in these markets as national economies become more formalised. There are good reasons why governments are committed to supporting SFMs. After all, Governments are both mandated and well-suited to protecting and enhancing the public interest, particularly the needs of the majority of the Kenyan population that look for guarantees of food security and public health. Similarly, the private sector, with her unique skills in entrepreneurship, economic efficiency and employment provision can join forces with Government authorities in expanding

the capabilities and deliverables of the SFM model. This sub-section of the report justifies this bilateral approach and suggests legal and practical structures for taking it forward as a means of enhancing the business case for SFMs.

## 4.2 Public–Private Partnerships (PPPs) Leverage Private Investment in Agricultural Value Chains

PPPs can be one way of increasing investment into smart fresh market food supply chains. PPPs have been employed in Africa to address state and market failures. As such PPPs can address the following:

- Pre harvest services rather than output marketing as a focus for Private sector investment.
- Investment in crop storage thus reducing spoilage.
- Progressive state intervention for smart fresh markets as produce supply chains liberalise.
- Low public investment in basic infrastructure.
- Private sector financial risk reduction strategies.

With the apparent benefit that PPPs can provide, simultaneously to smallholders and private companies, we need to promote well-structured PPPs.<sup>18</sup>

## 4.3 The Case of Tomato in Ghana: Institutional Support - PPP at Wenchi, Brong Ahafo

Under the platform of a “Public-Private Partnership,” four organizations, the German Technical Cooperation (GTZ), Brong Ahafo Regional Directorate of Ministry of Food and Agriculture (MoFA), Unilever Ghana Limited (Unilever) and Afrique Link Limited (ALL) promoted a pilot project to explore the commercial viability and sustainability of establishing a formal value-chain relationship in the tomato industry in Ghana. The project concept was for the public enterprises to assist the farmers to grow fresh tomatoes; for ALL to process into tomato paste and tomato pulp; and for Unilever to market and sell the tomato paste and assist ALL to

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<sup>18</sup> See <https://www.sciencedirect.com/ici/bezp1.cc.ic.ac.uk/science/article/pii/S0305750X11001471>

sell and market the tomato pulp through its distribution system. This provides a positive example of a PPP working for smallholder farmers in a rebuild context.<sup>19</sup>

#### 4.4 PPPs for Developing Agricultural Market Infrastructure

PPP MI, or Public Private Partnerships for Market Infrastructure should be framed as having the following overall objectives:

- Enhance food security and safety, thereby improving rural and urban development and quality of life.
- Smart Fresh Market construction, redevelopment, and enhancement project finance.
- Increase access of sellers to markets or even formal markets.
- PPP MIs do not necessarily require new infrastructure. You can build on what is already there by modernisation and upgrades.

These types of projects facilitate access to markets. Both for the seller and possible investors. For example, by improving marketing abilities to sellers. It can also assist with economies of scale, for example increase possibilities for fertilizer, farm technologies and training and other agricultural inputs from private sector businesses. This can assist work on advancing smart fresh markets because this could be a method for marketplace development.<sup>20</sup>

#### 4.5 PPPs and Transport links from Farms to Smart Fresh Market

A little further away from the smart fresh market itself but no less important is the means by which sellers can get their produce to smart fresh (if not all) markets. The economic case for developing road infrastructure to link elements in the agricultural value chain – suppliers, farmers, extension services, collection points, wholesalers, agro-processors, end-user smart fresh markets – is strong. This includes:

- Increased access to the fields during the fresh season, leading to better farm management.

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<sup>19</sup> See:

[https://www.researchgate.net/profile/Elizabeth\\_Robinson9/publication/265011908\\_The\\_Case\\_of\\_Tomato\\_in\\_Ghana\\_Institutional\\_Support/links/548ed2250cf225bf66a6a952.pdf](https://www.researchgate.net/profile/Elizabeth_Robinson9/publication/265011908_The_Case_of_Tomato_in_Ghana_Institutional_Support/links/548ed2250cf225bf66a6a952.pdf)

<sup>20</sup> For more information see: <http://www.fao.org/3/a-i5699e.pdf>

- Importance of farmers accessing rural wholesale markets, avoiding the loss of margins from dependency on local transportation agents.
- Growing importance of urban retail markets, and the need for efficient and rapid transportation to distribute products, especially perishable produce.
- Improved reliability of agricultural inputs, leading to higher yields and reduced post-harvest losses.
- Diffusion of improved farming methods, including irrigation and other land management methods.
- Increased flow of information between farmers, agricultural traders, and extension service workers.

These are significant benefits for farmers, supply chains, distributors and sellers for increased road infrastructure. There are five case studies where PPP models for agri-orientated road development arise. For example:

In Tanzania, the Road Act 2007 promotes involvement of the private sector in development, maintenance and management of roads. Local Government Act No. 7, 1982, is supportive of private sector involvement in transportation.

PPP investment in road infrastructure between farms and fresh market stalls may be a barrier to development if the seller is struggling to get enough produce to market. The seller may also incur damages to produce on route, and if it is a great distance then produce may spoil (if the location of a market is in a high temperature climate for example)<sup>21</sup>.

Is there a way in that a PPP could be set up with public sector, whereby private sector investment could go into allowing easier access of produce to markets? Repayment could come from tolls or taxes on road vehicles.<sup>22</sup>

## 4.6 Structured Contractual Sustainable Public-Private partnerships

This sub-section explains various innovative contract structures that can accommodate a range of smart fresh market ownership and leasing/rental arrangements. In this regard, there is no one type of contract that suits all smart fresh

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<sup>21</sup> Zhong, T., Si, Z., Crush, J., Scott, S. & Huang, X. (2019) Achieving urban food security through a hybrid public-private food provisioning system: the case of Nanjing, China. *Food Security*. 11 (5), 1071-1086. This paper discusses how PPPs can provide food security whilst ensuring that profit margins remain in place.

<sup>22</sup> Please see: <https://www.adb.org/sites/default/files/project-document/66596/39659-ind-tacr.pdf>

market stakeholder control arrangements. As such, this bundle of contractual types will suit virtually all such arrangements.

#### 4.6.1 Service Contract

Government hires a private firm to provide a service for a short period of time (1-3 years normally). The firm is normally selected through a competitive bidding process. Through this contractual approach, government remains the main provider of services and the private sector plays a minor role and does not directly interact with the partner. The private sector provides most the funding but not the project revenue, however, does not bare any liability financially or otherwise. These contracts can have a significant effect on productivity and is especially useful for private sector introduction of technology to marketplaces. These contracts have low barriers to entry.

Drawbacks include not being suitable for capital investment from private sector, not being able to have an impact to the broader system of management. Government maintains ownership and is therefore politically vulnerable if anything goes wrong.

Generally, this kind of contract is used in maintenance, emergency repairs, public information, and marketing provision. Such a contract structure could be useful within fresh markets that wish to introduce standard maintenance, where the public sector is strong and SFMs are not in need of serious improvement.

#### 4.6.2 Management Contract

This contract type extends the role of the private partner to provide some or all of the services when compared to a service contract. Still, this does not finance capital investments. Tariff is set by government and charged to consumer of the specified service. The government decides how much the contractor is to be paid for labour and other operational costs.

**Main advantage:** There are gains in efficiency to be made through private sector without the government selling assets. It is relatively simple to set up and incentives to improve efficiency can be included.

**Main disadvantages:** It is difficult to separate the operation of the public service and the finance and expansion of the service. The private party to the partnership is responsible for operating the public service while arrangements will need to be made for financing and expanding the service. Precautions need to be

taken into consideration to ensure that the private sector are not misleading stakeholders with their achievements to increase revenue.

Management contracts can be employed in SFM situations where the private sector wish to introduce their services quickly, or the private sector wishes to get a steppingstone into marketplaces. The drawback is that local or regional government actors need to be aware of potential false claims of service and, in addition, who controls the assets.

### 4.6.3 Lease Agreement

In this arrangement the private contractor is responsible for the complete operation and management of the public service. The private operator has the leverage to charge the users and, in most cases, the private operator bears the commercial risk. However, the private partner is not responsible for making any new or replacement investments. The quality of service and the tariff to be levied on the consumer is regulated by the government. Under a lease contract, the government owns the asset and is responsible for capital expenditures for new projects, replacement of vehicles and equipment or other physical assets, debt service, tariff and cost recovery policies. The government also bears capital investment risk which is generally recovered from the tariff charged by the private operator. In addition to this, the government also receives lease payments.

**Advantages:** In lease contracts the profits of the contractor depend on the sale of utilities/services (i.e., paid for primarily by SFM stallholders). Since by lowering the cost of production, the contractor can increase profits, there is an incentive to become efficient.

**Disadvantages:** The incentive to increase efficiency may lead to poor maintenance of SFM infrastructure and assets because this can lead to increased profits. This is likely to happen particularly at the end of the contract unless the prospects for contract renewal are sound. Also, in this type of contract the government must set the tariff which is a sensitive issue and may involve complex arrangements if the tariff structure is complex. If not, then such a theoretical disadvantage disappears. Moreover, this type of contract is not appropriate for attracting private finance.

Different countries have successfully leased out port terminal, railway line, optic fibre cable to the private sector. Therefore, this type of contract could work by governments and municipalities leasing SFMs out to the private sector if the private sector can provide evidence that leasing to them will assist with SFM development. The downside is that the private sector still may not necessarily fully invest in the market area without the right incentives (e.g., a long-term contract with a minimum of 10 years or more subject to the appropriate break clauses).



#### 4.6.4 Concession Contract

The contractor is responsible for the complete delivery of a service in a particular region. This contractor is responsible for providing working capital and all capital investments. (However, the public sector may extend finance in the form of Viability Gap Funding) These contracts are usually long term (25-30 years) so that an acceptable return on investment can be made by the private partner. The concessionaire collects tariff from the consumer directly, as per the contract. The government's role is mainly restricted to regulating the price and quality of service. The ownership of all assets remains with the government.

**Advantage:** A concession contract can provide a means of attracting private finance. In addition to this, greater risk can be transferred to the private sector. These contracts also have strong incentives in place to increase efficiency since lower costs will lead to higher profits for the contractor.

**Disadvantage:** In the absence of enough professional experience, they involve a complex contract which requires the government to have the means to regulate tariffs and performance standards. Because of their long-term nature, the bidding process and contract design can be further complicated. There is also a danger that the contractor may not make new investments if costs cannot be recuperated during the term of the concession. Furthermore, concessions may provide only limited competition because of their complex nature and because of the large investments required which could lead to inefficiencies. This latter shortcoming can also be overcome through sound contractual provisions.

This type of PPP will work well when informal markets become formalised as SFMs. With marketplaces that need more rapid development, in countries with proper government representation, this PPP may be quite effective as long as the right work is done up front on contractual terms.

#### 4.6.5 BOT Contract

BOT (Build-Operate-Transfer) type contracts are special forms of concession contracts. In BOT contracts, the private partner maintains ownership of the asset throughout the term of the contract. In a BOT project, the private sector finances, builds, and operates a specific new SFM facility and is responsible for operation, maintenance management of the system. The private sector actor also bears substantial project risk.

In addition to BOT contracts, there are a large number of variations such as BOOT (Build-Own-Operate-Transfer), BOO (Build-Own-Operate), BLT (Built-

Lease-Transfer), SOT (Supply-Operate-Transfer), ROT (Rehabilitate-Operate Transfer). Their specific purposes are connected to their functional names as per the acronyms in the last sentence. Since BOT and similar arrangements are a form of concession, they possess some of the same advantages and disadvantages. The advantages and disadvantages of the particular contract depend upon its specification. In such contracts, preparing the tender and the contract takes time due to its complex nature.<sup>23</sup>

#### 4.6.6 Divestiture or Privatisation

This would apply to a contract type in which a government stakeholder (national, municipal, crown or shell company) wants to pass on its fresh markets to a private or other entity.

### 4.7 How Civil Society Stakeholders make Smallholder / Smart Fresh Market Concepts Successful – A Tanzania Case Study

This important question provides some essential answers as to how to frame and empower stakeholders vis-à-vis fresh markets. What we have learned in Tanzania is that it is essential to improve buyers' pro-smallholder purchasing ability. This can be done through improvement of roads, railways, bridges etc. It can also be accomplished through improvement of SFM infrastructure itself. The accessibility of markets is also key both for suppliers and customers. Improved infrastructure to allow buyers to access towns, villages etc is relevant for the purpose of accessing fresh produce. In turn, their strategic location is key in attracting customers with higher density areas in population terms being the generally more attractive proposition.

There is also a need for innovation. Agricultural and business officers have trained smallholder farmers and market vendors in how to run their business, increase their farm yields and improve overall development. Many smallholder farmers and market vendors are responsible for the entirety of their business, including the procurement of correct materials and farming infrastructure. Business success in relation to servicing fresh markets is not likely to occur without technological or educational innovation reaching these smallholders in remote areas.

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<sup>23</sup> For more information on these contracts please see the following:

<https://poseidon01.ssrn.com/delivery.php?ID=898031068069020012083103092004120113024008049068035042027073092093009087104108126102101009029001009024018094065031120091116023098004058073081094067064086127071072073065014043110025007107091123093100113003090096019118072000005070113075094026020026081120&EXT=pdf>

In a more ambitious light inclusion of a fresh market vendor's produce into more formal markets can provide steadier income. Access through innovations such as fruit preservation/storage can address oversupply/undersupply issues.

These points are illustrated through a case study on the potential for organic agriculture to sustain livelihoods in Tanzania. Accordingly, it is noted that:

- Organic agriculture in Tanzania is predominately export focused.
- There is a basis for and evidence of enhancing organic agriculture contributions to sustainable livelihoods and food security amongst smallholder farmers.
- International trade and private sector donors have helped to commercialise smallholder organic agriculture with benefits for local, national and international markets.
- As such both top-down approaches (involving investment from large institutional entities) and bottom-up approaches (small holders pulling themselves up through commercial and farm training) can work together.<sup>24</sup>

#### 4.8 Farmers' Market Organizations (FMOs) as a key partner for Smart Fresh Markets

Grassroots, community-led organisations have been argued to aid rural development through the supply of local public goods or services (Bernard et al., 2008). Farmers Market Organisation (FMOs) are cooperative organisations that can support income generation. They offer the possibility of community-focused development through tentative inclusion in competitive markets. Smallholders are extremely resource constrained, so FMOs can create the strategic resources needed to compete with privatised traders. They also have the possibility to provide the institutional basis for connecting smallholder farmers directly to SFMs. This concept is promising because the aggregation of farmer commercial interests in direct market sales can effectively provide for partnerships between SFM operators and the farmers that supply SFMs.

Unless properly managed, issues may arise when such FMOs organisations wish to become more entrepreneurial, as there is the potential to address both the

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<sup>24</sup> For more information see the following sources:

[https://www.bmz.de/en/publications/type\\_of\\_publication/information\\_flyer/information\\_brochures/Materialie280\\_green\\_innovation\\_centres.pdf](https://www.bmz.de/en/publications/type_of_publication/information_flyer/information_brochures/Materialie280_green_innovation_centres.pdf)

[https://www.rural21.com/fileadmin/downloads/2019/en-03/Rural21\\_3\\_2019.pdf](https://www.rural21.com/fileadmin/downloads/2019/en-03/Rural21_3_2019.pdf)

[https://www.tandfonline.com/doi/pdf/10.3763/ijas.2007.0266?casa\\_token=sp1X0U6dFRQAAAAA:TaJZ3mCREdIfGDm14f04bVrCY4r0RQ05J\\_dcvB9z8d6LYNXw0C0fKrKMUb2bq0dP9CZb0Bd-MLk](https://www.tandfonline.com/doi/pdf/10.3763/ijas.2007.0266?casa_token=sp1X0U6dFRQAAAAA:TaJZ3mCREdIfGDm14f04bVrCY4r0RQ05J_dcvB9z8d6LYNXw0C0fKrKMUb2bq0dP9CZb0Bd-MLk)

<https://docs.wfp.org/api/documents/WFP-0000110345/download/>

aims of inclusion and competitiveness if this is explicitly understood. Inclusivity can support overall development and the general upgrade of fresh marketplaces provided that it is well managed. At the same time FMOs that also focus on competitiveness can drive development and innovation. As such entrepreneurial FMOs will attract more investment and can facilitate entry to a formal market. (Lutz & Tadesse, 2017).

## 4.9 Competitiveness vs Inclusiveness

Unless explicitly managed, FMOs can become conflicted between efficiency and equity. This issue is generally not reported on in academic literature (World Bank, 2007). For an FMO to be inclusive, there generally must be low entry fees, open membership and community services must be focused. However, this generally can give rise to ‘freeriding’, i.e., members who do not contribute sufficiently, either deliberately or through no fault of their own, to the overall revenue of the FMO. When this happens, it can stifle innovation, development, and investment.

Competitive FMOs must be more flexible and efficient in their output if they are to compete with established private businesses. Such FMOs may require substantial investment, which benefits from a degree of investor-investee trust. FMOs that cannot perform to the standard required will not receive as substantial, if little, funding. It should be noted that investment does not just always mean capital. Investors may also want a stake in management which in some cases can be a cultural roadblock (Barham & Chitemi, 2009).

Crucially, if an inclusive FMO is to be successful, there are some key issues that need to be addressed. For FMOs with large membership bases, strategic governance is required. The more resources are collected the larger the group, yet, this can create governance difficulties, such as regulation of members. This can in turn lead to troubles such as the free rider issue, control issues and influence costs. In many cases that require smaller investment, these problems can be addressed, however, with larger investments more targeted governance will be the key to success for the FMO (Lutz & Tadesse, 2017).

## 4.10 An FMO in Ethiopia

The Ethiopian Government provides support for the development of FMOs. In Oromia, NGOs promote competitive FMOs, mainly for food crops. They build, trade and mentor FMOs by strengthening unions. The report by Lutz and Tadesse (2017) examined 16 FMOs operating in the area and drew these issues as conclusions:

- **Commitment to provide financial resources and collateral**

Smallholders are asked to invest only small amount to be a member so barrier to entry is low. However, total revenue from membership fees are too low to finance the FMO operations needed and loan access is low. Smallholders do not gain the full possible benefits of being involved in the FMO.

- **Commitment to sell**

Smallholders are not generating enough finance through the FMO so there are informal sales also taking place to finance smallholders.

- **Commitment to contribute to the management**

Leadership is not based on capabilities but on social status. Perhaps there is a need for a committee based on expertise and professional commitment instead? In this regard, there needs to be an auditing committee to provide for professional, transparent of FMO business affairs.

- **Targeting**

More entrepreneurial activities need to be targeted and supported in growing the FMO. If FMOs need to counterbalance or overturn any traditional power model that is not fit for purpose by developing and implementing an entrepreneurial strategy. This will make the FMO a sustainable competitor in the formal or informal marketplace.

Overall, the following conclusions were made:

- There needs to be greater transparency; a basis for addressing freeriding; and, greater participant investment.

This supports the following additional generic requirements for FMOs:

- There needs to be a clear distinction between community and market-oriented organisations
- Investors are a major positive influence on FMOs (either government or private) and should be consulted in relation to relevant institutional strategies and considered in respect of decision-making structures
- If NGOs or government actors are to be involved, then lack of infrastructure can be addressed through subcontracts with the private sector. However, when this occurs then there must be the right strategy and legal basis for transferring infrastructure from the governing or private sector entity to the FMO. As well, if NGOs /government/the private sector are providing advice, assistance and

support to an FMO then these relationships should be established for a longer period to ensure the FMO's permanent sustainability.<sup>25</sup>

## 5 Conclusion

After the introductory remarks setting out the basis for this report, we presented a data gathering analysis that featured both top down and bottom-up evaluations of likely product flows through Kenyan SFMs noting that there are approximately 16.44 million people selling food in this nation. As a main outcome of this data gathering and analysis activity, we found that existing literature updated to today provided for a top-down estimate of \$1.53 billion in product flows through SFMs. Our detailed bottom-up analysis of 20 commodity flows through SFMs yielded a total sum of \$1.887 billion. This converged with our analysis of household expenditure on SFM products which was determined to be \$1.832 billion, a difference of only 2.9%.

In Chapter 3 we travelled beyond this data analysis in order to understand revenue streams to Governments associated with SFM activities. These revenue flows amount to some \$17.18 million to 24 (out of 47) county governments annually. In that chapter, we examined the (in)equitable position of the nation's smallholder farmers in realising their proportionate share for engaging in the challenging life of agricultural production where their contribution to Kenyan food systems and food security is pre-eminent among stakeholders. We also proposed reforms such that government revenues from this sector could be earmarked in part to address transport infrastructure and to improve the lot of smallholder farmers through innovations that more directly tie them to retail food commodity outlets including SFMs.

We proceeded to examine possible business employment prospects around a multifunctional, model smart fresh market using a modernised, scaled example of the Nairobi City Market which features some 200-300 stallholders. We noted that similar prototypes could be extended to a majority of Kenya's estimated 112,500 SFM stallholders at informal food markets. This would represent a multiplier effect of some 4,000 times the City Market Size SFM if such a model were rolled out nationally. If our potential employment figure estimate ranging from 662 to 876 staff is reasonably accurate then this would translate into some 2,648,000 to 3,504,000 jobs in and around the immediate vicinity of SFMs across the nation. Lastly, in Chapter 3 we commented upon the contribution of SFMs to healthful diets, noting their likely contribution of 0.5% (\$4.4 billion) of annual GDP that SFMs can be designed to promote. In our final chapter we addressed the role of different possible

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<sup>25</sup> For more information see: <https://www.tandfonline.com/doi/full/10.1080/00346764.2017.1300317>

business management structures and contract types for SFMs. The institutional and business policy basis for advancing direct smallholder farmer participation in SFMs was also elucidated along with supporting case studies.

By way of a final message, this report sends a strong message in relation to the significant stakeholder and civil society benefits of SFMs noting - in particular - key government, business, investment, and philanthropic audiences. It is natural that these communities should be co-leaders alongside existing actors in advancing the vision and reality of a 21st century multifunctional SFM delivery model for fresh, healthful diets for Kenyans and all other societies where SFMs are already woven into the familiar fabric of daily life.

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