sustainability

MDPI

Article

Exploring the Staple Foodscape of Dar es Salaam

Marc C. A. Wegerif [1,2,*] and Johannes S. C. Wiskerke [3]

[1] Rural Sociology Group and Sociology of Development and Change Group, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands
[2] Institute for Development Studies, University of Dar es Salaam, Dar es Salaam, Tanzania
[3] Rural Sociology Group, Wageningen University, Hollandseweg 1, 6706 KN, Wageningen, The Netherlands; Han.Wiskerke@wur.nl
* Correspondence: marc.wegerif@wur.nl; Tel.: +27-76-373-4115

Received: 24 May 2016; Accepted: 16 June 2017; Published: 21 June 2017

Abstract: The city region foodscape is a relational space of spatially proximate as well as more distant relations. The current understanding of city region foodscapes will be enhanced by more analyses of what is happening in the African and Asian cities where rapid population growth and urbanization, with all its challenges and opportunities, is predominantly taking place. This paper explores the city foodscape of one such city, the rapidly growing Dar es Salaam with over 4.5 million inhabitants. By following some important foods for eaters in the city, this paper draws a picture of the changing shape and nature of Dar es Salaam's foodscape and draws out lessons for debates on city region food systems and urban food planning. It is found that key staple foods are coming from the rural hinterland through a food system that is not part of or modeled on the globally dominant corporate food system and as such represents a working alternative. This food system neither fits within administrative boundaries nor relies primarily on local production. We argue that more academic and policy attention needs to be given to understanding and reinforcing such middle-ground, neither local nor global, food systems that are delivering at city feeding scale.

Keywords: foodscapes; city region; food system; Dar es Salaam; rice; potatoes; maize; markets; food security; rural development

1. Introduction

In September 2015, we were participating in a working group on "Conceptualising and Assessing City Region Food Systems" as part of the "Agriculture in an Urbanizing Society" conference taking place in Rome [1]. One of the striking things about most of the presentations and much of the discussion was how many people approached the idea of the city region food system from within the confines of the administrative boundaries of the municipal, district or regional government structures. One presenter focused on the possibility of expanding the Amsterdam city boundary in order that all the food required for the city could be produced within that boundary. Another presentation was on the food and agriculture policies and practices of six Mediterranean city administrations and a third was an analysis of the practices in two community gardens, one in Berlin and one in Amsterdam. The first author of this article presented on the maize supply to Dar es Salaam showing how maize, the most important staple food in Tanzania, came to the city through a foodscape that had little if any regard for administrative boundaries or policies [2]. There were clearly two very different ways of conceptualizing, studying and planning around city region food systems and a debate worthy of further attention.

The first approach essentially takes administrative boundaries and looks at what is being done and could be done within these. The focus then becomes on research, policy and planning around food within that defined region. This overlaps with a tendency to look for and value the local with

assumptions that food should and could be produced locally, within the boundaries of the defined region. The second approach looks at the food needs of the city and explores the relationships that have shaped where currently and sometimes historically food came or could come from for sustainable food supplies in the future. The food becomes the starting point for the research, rather than a bounded territory. Looking back at the related literature, we find that the bulk of work has been oriented towards the first approach, but we contend that realistic solutions to sustainably feeding growing cities will require more work that takes the second approach.

Many proponents of "alternative food networks", despite acknowledging their heterogeneity, seem to jump from criticisms of the global food system to a focus on niche products and very local solutions largely in the form of "short food supply chains" (SFSC) [3,4]. In more recent years, this type of focus has often been referred to as the "local trap" [5]. Renting et al. go as far as using "'short' as a common denominator for the types of food supply chain that are emerging within rural development" [4] (p. 398). This approach risks missing the potential and importance of food systems that sit between the extremes of local and global and deliver the bulk of foods essential to large urban populations. In writing in their important work on city region food systems Forster and Getz Escudero noted that "[d]ialogue is often polarized between the "ideology of the local" and the "ideology of the global", when in fact there should be articulation of a more integrated and multi-level approach in areas of good practice, governance and policy" [6] (p. 6). The other focus, even when looking at more spatially dispersed "alternative food networks", has been to look at those that are actively constructed by state and civil society institutions such as through food policies and plans and certification initiatives to confirm the particular quality attributes of certain foods. As Renting et al. argue "Extended SFSCs depend critically on institutionalized conventions, codes, and mediators" [4] (p. 400).

Scholars, policy makers and activists have called for more work to analyze and rethink rural urban relations, especially in developing countries, as a basis for achieving food and nutrition security, rural development and more equitable relations [6–10]. The concept of the city region foodscape can be a useful entry point for this, provided it does not fall into some of the limitations of city region food system work that we mention above. This implies it should be used as an analytical tool, mapping, describing and analyzing the socio-spatial relations of food provisioning, rather than as a normative tool, exploring how food provisioning can be spatially confined within a specific territory. This article analyzes the foodscape of a "symbiotic food system" [11] that exists as the main supplier of foods to a major African city; Dar es Salaam. Dar es Salaam is the ninth fastest growing urban center in the world, with a population of over 4.5 million that has increased by over two million people in the last 14 years [11–13]. Sustainably feeding cities like this, where many of the residents of the city and those in the rural hinterlands of the same country live in poverty, is a growing challenge that any food system will have to meet [7,8,14].

Tanzania produces most of the food, especially basic foods, that it needs, and most of this production is done by small farmers in the six million households that are engaged in agricultural production with an average of just 1.3 hectares of land each. To ensure that the foodscape looked at is one meeting basic food needs for the majority, we give particular attention to three important staple foods; maize, rice and Irish potatoes (as opposed to sweet potatoes). Around 3.5 million households plant maize, 1.2 million grow rice and only around 110,000 grow Irish potatoes [15]. Maize and potatoes are grown almost exclusively by small farmers in Tanzania and around 90% of rice production is also by small farmers [16]. Low productivity and lack of access to land and inputs are constraints [15,17] but despite this production has increased significantly over the years with rice paddy production doubling between 2004 and 2014 and potato production going up 2.5 times in the same ten-year period [18]. There is some importation of rice and maize into Tanzania, but also some exporting to neighboring countries. More significant amounts of wheat, soy and cooking oil, as well as other processed foods are imported [16]. It is found that the bulk of key staple foods essential to the diet of the majority of residents of Dar es Salaam are being produced and transported across a foodscape that includes far flung rural parts of the country. That there is not more staple foods imported from outside the country

is in part due to the tariff and other regulatory protection of the national market [19,20] and because there is a functioning food system that delivers within the country.

There has been significant progress in addressing poverty and hunger, but there is no room for complacency as Tanzania continues to have high levels of under-nutrition: 32.1% of the population were reported to be undernourished in 2015, compared to 36.8% in 2000 and child stunting levels dropped over the same time period from 48.3% to 34.7% [21].

Important findings from the research that informs this article are that the primary food system that feeds Dar es Salaam has emerged without any state or other institutional intervention. Instead, it is built through the interdependent actions of a wide range of small-scale actors that are operating within a common set of cultural repertoires [11]. The foodscape that this food system creates does not align with any administrative boundaries and continues to evolve and change in response to a range of influences. This is a very different foodscape from any based on the global industrialized food system and it has many of the positive attributes of alternative food networks in Europe and North America. At the same time, it would not be realistic or beneficial for rural development to try and structure the primary foodscape of a city of Dar es Salaam's size around administrative boundaries or to rely primarily on local production. More attention needs to be given to understanding existing middle-ground foodscapes, like this one, for appropriate interventions to enable or shape them in other settings. We believe this food system and its foodscape have important lessons for work on alternative food networks, urban food planning and wider debates on food security [10] as we seek to meet the challenge of "how to feed the growing urban world population in a way that can be defined as socially, economically and environmentally sustainable and ethically sound" [8] (p. 21).

2. Foodscapes: A Brief Conceptual Introduction

The notion of foodscapes has recently been introduced, primarily in the field of public health and nutrition studies, "as a tool to describe our food environments and to assess the potential impact on food choice and food behaviour" [22]. An easy way of explaining the term foodscape would be to understand it as an assembly of its two components—food and scape—and thus define it as "the relationship between food, its spatial context and the viewer—the person to which this image appears" [22] (p. 210). Following this line of reasoning, Freidberg [23] argues that a foodscape is to be understood as the actual site where we find food. Lake et al. [24] (p. 666) built on that by using foodscape as a synonym for food environment, which, according to the authors, "encompasses any opportunity to obtain food and includes physical, socio-cultural, economic and policy influences at both micro and macro-levels". This adds two important elements to the definition of foodscape: (1) socio-cultural, economic and political aspects (in addition to the spatial and physical factors), and (2) scale. The latter dimension is well elaborated by Sobal and Wansink by distinguishing between macro scale and micro scale food environments [25]. The macro level is shaped by "global or regional marketscapes that shape food choices through widely dispersed international food systems that include transportation networks, agricultural and food industries, and food distribution outlets" [25] (p. 125) and by built environments at the community scale providing "food landscapes (. . .) that represent eating outlets available for choosing foods that determine food provisioning" [25] (p. 126). The micro level, according to Sobal and Wansink [25] (p. 126), concerns the domestic foodscape, which refers to the physical appearance of the food; the way in which food is served; the amount of food that is served; how, where and with whom (if any) meals are eaten; and how and where meals are prepared and food is stored.

The inclusion of scale and place (i.e., the physical location of a specific food provisioning activity) in the definition of foodscape points to two important constituting elements of the concept:

(1) Foodscapes are nested, meaning that the domestic foodscape is embedded in a community or neighborhood foodscape that in turn is embedded in a regional or global food marketscape. In other words, what is eaten at home is linked to and may be influenced by the kind of food outlets

that are present or easy accessible in the neighborhood or city and by the spatially proximate or extended food chains that supply these outlets.

(2) Foodscapes are interconnected, meaning that the places shaped by different food provisioning activities—i.e., producing, processing, distributing, trading, preparing and eating—are related to one another. For example, supermarkets at the outskirts of towns, long distance food transport systems (harbors, airports and central distribution centers), processed food and large scale monofunctional agricultural production systems are interconnected [26]. The same holds true for urban and peri-urban farms, low-cost short distance modes of food transport, people's markets and street shops [27].

This interconnectedness also means that the definition of foodscape, as developed within the public health and nutrition studies domain, where the emphasis is on the food purchasing and out-of-home eating environment, has to be broadened to encompass all places where food provisioning practices take place, hence from production, to processing, distribution, sales, cooking and eating, as well as the socio-spatial relations and interactions between these practices. This thus calls for a relational understanding of foodscape. The city region foodscape is then to be understood as the spatial manifestation of and social relations between these food provisioning activities.

3. Methodology

Our field methodology primarily involved the socio-spatial exploration, mapping and analysis of Dar es Salaam's foodscape by following the food [28,29]. This enabled us to follow the human actors and actants (non-human actors) that come to play a key role in moving food from places of production to consumption; an approach that resembles following actants and actors as described by Latour [30]. In this way, the paper maps networks of food provisioning (who is doing what, how and why) and makes the spatiality of the food system, and its networks, explicit and visible. The socio-spatial analysis follows from our definition of foodscape: the spatial manifestation of and social relations between food provisioning activities (production, processing, transport, trading, cooking, and eating).

A qualitative multi-sited ethnographic approach was deemed most suitable for following the food and revealing the socio-spatial nature of the foodscape. Starting with eaters of food in Dar es Salaam the research identified the most important foods and sources of these foods for the majority of people. This ensured the study focused on foods that are important for meeting people's food and nutrition needs and informed the next stages of the research when we traced the sources of food from urban eaters to retailers, wholesalers, processors, transporters and back to the primary producers (Figure 1) [30]. Different foods, such as maize, rice, potatoes, green vegetables, milk, meat and eggs have been looked at. This paper will focus on the findings related to the core staple foods of rice, potatoes and maize that are a big part of people's diets and the supply of which involves geographically extended food systems that are of interest in exploring the wider city region foodscape.

The field research was carried out by the first author from November 2011 to the end of July 2015 and combined observation, accompaniment and semi-structured and informal interviews and conversations with social actors involved in food supplies as well as a range of eaters in Dar es Salaam [31,32]. In depth information has been gathered from 174 respondents from different parts of the food system. All respondents were interviewed and many of them were accompanied in their work and engaged with through repeat visits over years. The first author lived in the primary research site, Dar es Salaam, immersed in, using and observing the food system daily for seven years. Conversation with many more people than it was possible to interview has provided more information and corroborated what came out of in-depth interviews. By conversation we refer to the informal and often short conversations held, for example, with dozens of different busy traders in markets visited and with farmers and traders over beers in village bars on many evenings. The extensive use of transport led to the use and development of the "ride-along" as a methodology [32]. Accompaniment

of people combined with observation has been invaluable and involved going into fields (Figure 1), spending time at markets (Figure 3), traveling with transporters, and of course eating with people.

Figure 1. A wife and husband harvesting rice from their field in Morogoro Region.

4. Results

This section gives an overview of the foodscape through which rice, potatoes and maize reach Dar es Salaam, highlighting important characteristics of the food system and its foodscape. More space has been given to explaining the supply of rice as findings on maize from the same research have been published elsewhere and many of the characteristics of the foodscape are similar across these three foods. The results are partially presented by portraying several real-life stories of actual individuals combined with more general description that is based on multiple observations, conversations, interviews and existing literature.

What can be seen in all cases is how the foods are sourced from spatially distant areas that are suitable for their production. The map in Figure 2 shows Dar es Salaam and some of the main production areas for each of the three crops focused on in this paper, including the three specific sites described below: Ubaruku for rice, Isyonje for potatoes and Kibaigwa for maize.

While the distances are large, the nature of relations between the actors in the food system are very personal involving transactions between interdependent actors most of whom operate at a similar economic scale. The actors are familiar with each other and conclude negotiations with the exchange of goods and cash with no need for contracts or corporate structures. The efficiency of the system is illustrated by the narrow margins, in comparison to the work and risks involved, taken by the actors.

4.1. Rice

Sharifa is ten years old. It is about 7:00 p.m., the sun has set and the limited light in the street comes from the windows and open doors of people's houses, she knocks on the gate of one of her neighbors and asks for a few shillings to buy some rice. Her father is not home from Kariakoo in the center of Dar es Salaam where he has a small business selling used car tires, a business now negatively affected by the importation of cheap tires from China. Sharifa is given TSh 1000 ($0.61). She goes to Mangi's duka (small shop—see Figure 3), sitting in a pool of its own light, about 50 m away and buys rice to the value of TSh 1000. The rice is scooped from a sack in the shop and weighed on scales. Mangi knows Sharifa and knows her family as do the other people in the street. She walks the short distance home where her mother immediately cooks the rice. The beans cooked with coconut are already prepared. Mangi would sometimes sell the rice on credit, but Sharifa's family owe too much already, her mother's drug use combined with her father's struggling business is not making life easy for the family.

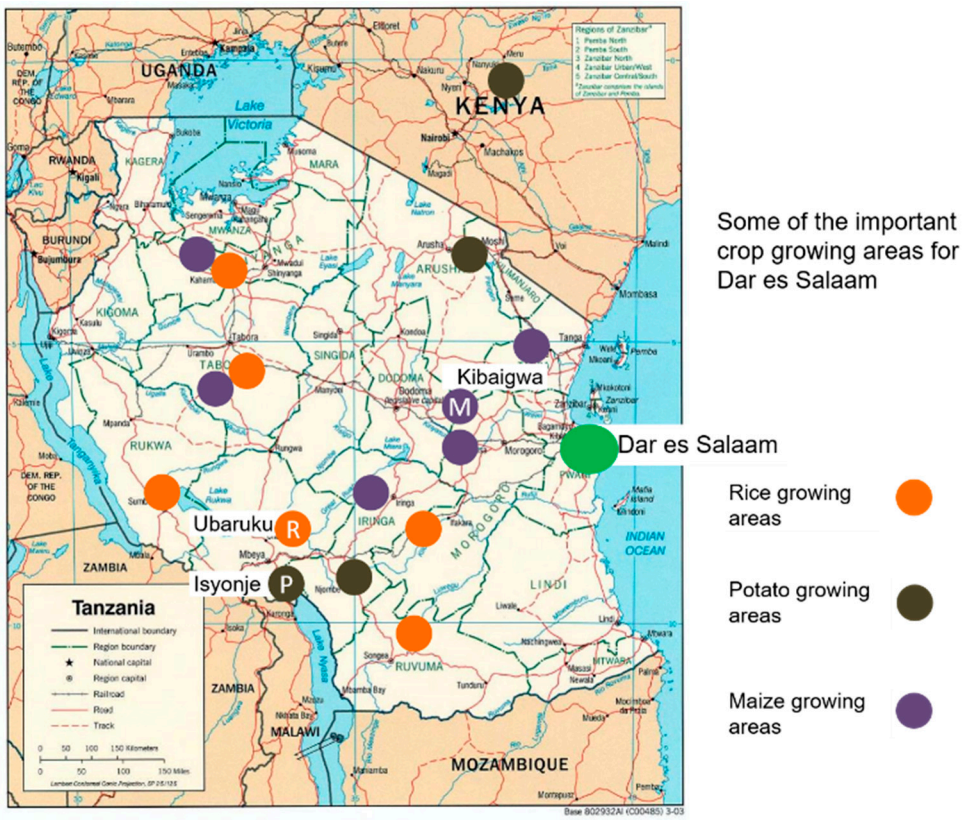

Figure 2. Map of Tanzania with some important production areas for crops looked at in this article.

(**A**) (**B**)

Figure 3. (**A**) Rice trader at Mwananyamala market; and (**B**) the duka where Sharifa buys rice.

Mangi always has two sacks of rice at the duka, one more affordable (TSh 1500—$0.91 per kg in July 2015), one of a better quality and a bit more expensive (TSh 1700—$1.03 per kg). He weighs and sells any quantity that customers want. The rice prices are consistently cheaper in the local shops than in the super markets, for example at that time the cheapest rice in the Nakumat Supermarket (a Kenyan supermarket group that took over the Shoprite operation in Tanzania) was TSh 2950 ($1.79) per kg for a two-kilo packet. Rice is also sold in the grain shops and markets, normally at a lower price than the duka. Any customer, with the means, can go to the Mwananyamala market where Mangi goes on his motorbike to buy rice, but they may not get the same price that Mangi can negotiate as he

is a regular and larger customer. Much of Mangi's profit margin is the discount that he can negotiate, meaning that the price Sharifa is paying for rice at his duka is not very different from the normal retail price she would pay even if she could get to the market. There are a number of other markets selling rice retail and wholesale across Dar es Salaam. There is also a supermarket within about 20 min walk of where Sharifa lives, but she has never been inside it. That would not be a safe walk at night and she and her family know that for the food they eat, beans and rice being the most common dinner, the supermarket will not always sell the quantities they can afford at the times they have the money and in any case it would be more expensive.

At the Mwananyamala market Mangi buys from traders who have small stalls, on which they set out their rice in little pyramids for the customers to see, feel and smell. Behind the stall the traders have sacks of rice piled up (Figure 3). There is also a shared storage area where they put more rice if they need extra space. Mwananyamala market has about 30 rice traders, but also many other stalls selling different foods and around the edge of the main market and in road outside the market are shops and traders in all sorts of other goods.

There is a variety of rice of different types, prices and qualities available. The rice quality is associated with regions and with the quality of the husking, in particular how many wholegrains there are or how broken up the rice grains are. At Mwananyamala, customers walk in the spaces between the stalls, stop and talk to traders they know, looking at the rice and taking handfuls of it, watching it run through their fingers, sometimes smelling it (the aromatic rice is preferred and fetches a higher price) before deciding which rice to buy.

Almost all the rice found at the Mwananyamala market comes from Mbarali District of Mbeya Region, some 800 km away (Figure 4). With flat valley land and sufficient water for irrigation, in an otherwise arid area, this is one of the most important sources of rice for Dar es Salaam. Other significant rice growing regions are Shinyanga, Morogoro, Mwanza, Tabora, Ruvuma and Rukwa [15]. Rice from Mbarali and some of these other regions is also exported to neighboring countries. The rice in Mbarali Region is grown on land irrigated through traditional irrigation systems and in three large irrigation schemes, each one of about 3000 hectares, built by the Chinese Government in the 1970s. These were originally run as state farms and then privatized and handed over to companies with the idea that they would be run as large commercial estates [33]. In practice, small-scale local farmers have taken over and continued most of the production on these irrigation schemes during the state-run era up to today despite the corporate ownership. The over 3000-hectare irrigation scheme at Ubaruku in Mbarali is largely used by small- and medium-scale local farmers who rent the land on an annual basis from the company, Highland Estate, who obtained the land in 2006 through a privatization process. Highland Estate only use about 300 hectares of the land themselves.

(**A**) (**B**)

Figure 4. (**A**) Local rice traders with sacks of rice queuing outside one of the rice mills in Ubaruku; and (**B**) traders keep a close eye on their rice and the machines inside the mill.

Ubaruku is a vibrant town with restaurants, bars, bicycle shops, farm input shops, places to buy plows and farm implements, and mills for husking rice paddy. Rice is the core business of the area and at the center of that rice business are the rice milling machines (used to husk and sort the rice). There are rice mills throughout the small town, but of particular significance are seven large millers located together on the outside of the town (Figure 4). They were moved there a few years ago when the municipality decided that the town was too congested and the milling operations, with their production of large amounts of chaff, were a health hazard. The move seems to be working for the millers as well. They are expanding their mills and warehouses and there is more space for the large trucks that are collecting rice every day, most of them heading towards Dar es Salaam. Three-phase electricity, capable of running the large machines, has been supplied to the area.

There is a continuous bustle around the mills; it goes on all night if the electricity is working. Farmers and traders queue with their sacks of rice paddy (Figure 4). Traders from elsewhere, almost all from Dar es Salaam, meet outside the machines with the local traders and farmers. Tractors and power tillers pulling trailers bring in the rice paddy, semis (truck trailer combinations capable of carrying between 30 and 33 ton loads) are being loaded or waiting. The transport dalalis (agents) are following up traders or truckers and there is always a tax man there to watch and collect the tariffs that make up a large part of the revenue for the Mbarali District Municipality. This is all in stark contrast to the normally quiet environment around the large mill at the Highland Estate, which is only husking the rice paddy they have grown.

Most of the mill owners are or were rice farmers themselves, sometimes combined with other work or business, but the main business of their machines is husking rice for other farmers and traders. Some farmers are much bigger than others, a few producing rice on several hundred acres, but none has become so dominant that they have their own milling or transport operation for their exclusive use. The mill owners have made considerable capital investments and all of them depend on the many farmers in the area to keep their machines going and paid for.

Lina is in her early thirties, her parents are not from Ubaruku, but she grew up there. She farms rice and does a bit of rice trading as well. In 2015 she harvested 70 sacks of rice paddy from three acres (1.21 Ha) of land that she rents in the Highland Estate. That makes a harvest of approximately 7 tons for a yield of 5.78 tons a hectare. This is well above the average yield in Tanzania of 2.83 tons [16] and in the range of average yields for rice production on irrigated land [14]. She rents the estate land for TSh 825,000 ($500) per season. She also pays for a tractor to plow and laborers who plow, plant, weed and harvest. She buys inputs of fertilizer and pesticide. In July, Lina had not yet sold, as she was waiting until December when she thought the price would be better. She stores the paddy in a godown (warehouse) belonging to one of the large mill owners and if she mills at his machine she will not have to pay for the storage. When Lina finds a buyer, almost always from Dar es Salaam, she will arrange the husking and sell the processed rice directly.

Sarah is a typical local rice trader in Ubaruku; “I go to the villages I buy rice paddy, then I come to the machines, I husk it and I sell rice, that is my work” she explains. Sarah is a widow from Iringa who lives in one rented room with her youngest son and sends her other three children to boarding school. When not collecting rice paddy she can be found at the milling machines that she describes as “my office”. She has dalalis (agents) in the villages. When she knows what kind of rice paddy and what quantities she needs, she contacts them and they collect from the farmers and call her when the rice paddy is ready. These dalalis all live in their respective villages and they get TSh 2000 ($1.20) per sack of rice paddy.

Sarah arranges transport to bring the rice paddy to the husking machines. She makes a sale about once per week throughout the year with each sale being between 4 and 15 tons. The buyers are from Dar es Salaam and Sarah only arranges the husking once the buyer has checked the rice and they have agreed a price. This price can sometimes be re-negotiated if the quality after husking is not what was expected. Sarah has many expenses: transporting of rice paddy to the mill; casual laborers to unload; workers who spread out the rice paddy to dry (done on the open ground around the mills); laborers to

carry the paddy into the mill; the husking itself (TSh 70—$0.04 per kg); and others to pack the rice into sacks and sew them shut after the husking. "I pay for every step" she says. Sarah also carries a number of risks; a big one is that she buys the rice paddy by volume in sacks that have not been weighed, but are assumed to be around 100 kg. After the husking she has to sell by weight. If the paddy is of a poor quality with a lot of soil mixed in she may only get 75 kg after husking; "then it is just a loss" she says. She hopes to get between 80 and 85 kg of rice per sack of paddy; then she will have a profit. The price of rice paddy from the farmers was between TSh 80,000 and 85,000 ($48.50 and $51.50 in July 2015) per approximately 100 kg sack and the selling price of the rice in Ubaruku between TSh 1200 ($0.73) and 1300 ($0.79). If the conversion of paddy to rice is at a reasonable 80 kg per sack Sarah will have a gross margin of between TSh 200 ($0.12) and TSh 300 ($0.18) per kg from which she must pay all costs and make her profit (Table 1).

Table 1. Prices received by different actors per kg of rice, for the lower cost rice as of July 2015 and based on an average conversion of 1 kg paddy to 0.8 kg rice.

	TSh Price per kg of Rice (After Husking)	Gross % of Retail Price Received by Each Actor
To rice farmer	1000	66.6%
To local rice trader	1200	13.3%
To Dar es Salaam Trader (discounted to buyer like Mangi)	1300–1400	6.7–13.3%
Mangi selling at the duka	1500	13.3%

Note: These are gross prices and all actors incur expenses. These prices also vary with rice quality, negotiations between particular actors and through the seasons.

The rice farmers in Ubaruku are getting around two-thirds of the retail price of the rice sold in Dar es Salaam through the foodscape described in this article (Table 1). As noted the supermarkets are considerably more expensive so take a larger share of the retail price when they sell. Table 1 shows the gross income per kg of rice to the main actors based on July 2015 prices of the cheaper rice varieties and assuming an average of 80 kg of rice from 100 kg of paddy. The buyers from Dar es Salaam are often selling directly at markets similar to Mwananyamala, as shown in Table 1, although there are some who sell on in bulk to such market traders. These figures illustrate a particular set of transactions at a specific time. There are slight variations to this that take place based on slightly different business models, negotiations and seasonal and other price fluctuations.

The typical trader from Dar es Salaam will buy from a few local traders or farmers, such as Lina and Sarah mentioned above, in Ubaruku to make up the amount of rice that they want. Most of the semis going to Dar es Salaam are also carrying rice for a few different traders. For example, one truck the researcher travelled with to Dar es Salaam from Ubaruku was carrying rice for five different traders. The largest amount for one trader was 12.9 tons and the smallest was 2.25 tons. The packing of the rice in 100 kg sacks is essential for this flexibility, the name of the trader (or nickname) is written on the sacks with marker pens to be able to identify them and offload the correct sacks at the appropriate place in the city. Most of these traders have several traders in markets that they deliver to in Dar es Salaam or have their own market stall from where they sell. They often work with a partner so that when one is on a buying trip to a place such as Ubaruku, which can take weeks, the other keeps on selling.

The semis picking up rice in Ubaruku are all on their way back to Dar es Salaam after delivering other goods in the Democratic Republic of Congo and Zambia. The trip becomes more viable for the truck company and the transport to Dar es Salaam more affordable for the rice trader, thanks to this symbiotic relationship. There are also now some small and locally owned truck companies in Ubaruku.

4.2. Potatoes

It is the end of December 2014 in the small village of Isyonje, which is in the hills about 40 km to the South of the town of Mbeya. The cool air and fertile soils in these hills make it an ideal area to grow potatoes (Figure 5) for which there is a large demand in Dar es Salaam where they are mostly used for making chips. The tar road that goes to the border with Malawi runs through Isyonje making it accessible for trucks. On this day, there are nine semis all waiting to be filled with potatoes that are destined for Dar es Salaam, around 900 km away (Figures 5 and 6). Potatoes are brought to Isyonje from the surrounding areas by small trucks and old Land Rovers and sometimes on the back of motorbikes.

Figure 5. Potato field and sacks of potatoes waiting to be collected in Mbeya Region.

Figure 6. Trucks waiting in Isyonje Village and on the right Land Rovers bringing potatoes from surrounding villages to be loaded.

The village council has built a warehouse from rough wooden planks and leveled an area of ground near it where four of the semis are parked. Inside the warehouse Angie is taking potatoes from a pile on the floor and packing them in sacks of around 140 kg each. She buys them by the bucket from farmers who bring them to the warehouse. When she has enough she sells to traders who are sending the potatoes to other places, almost all to Dar es Salaam. One of Angie's two children is playing near the pile of potatoes on the floor while her mother works. Angie and her husband have some land and farm as well, but she says a lack of capital limits her from farming more.

Outside the warehouse Ikupa stands, with a baby wrapped in blankets on her back, watching casual laborers moving 40 sacks of her potatoes from the smaller truck she came with directly onto one of the semis. Ikupa has sold 105 sacks on that day and is checking by phone where the other truck she hired is. She and her husband farm potatoes on land that they rent for TSh 2,000,000 ($1212) per season. They have harvested a total of around 800 sacks this year and are one of the bigger growers in the area. The trader she is selling to is buying from others as well in order to fill the truck with 210 sacks. When the loading is complete, Ikupa waits for the trader to come and pay her, the laborers, the village tax and a transport deposit to the semi driver. He also has to give the driver instructions about where to

deliver the potatoes in Dar es Salaam. The trader arrives by bus from Uyole, near Mbeya, where he lives. He is a skinny man in his late twenties wearing dusty sandals, jeans and a T-shirt and carrying a bundle of cash in a backpack slung over his shoulder.

The semi driver is also the owner of the semi. He has two, one he drives and the other he employs someone to drive. This journey started with taking building materials imported through the harbor in Dar es Salaam to Mukamba in the Democratic Republic of Congo (DRC). Now he is on the way back to Dar es Salaam where he lives. All the semis picking up potatoes are on their way back to Dar es Salaam after making deliveries in either Zambia or the DRC.

The potatoes were selling in Isyonje for between TSh 30,000 ($18.18) and 45,000 ($27.27) per sack depending on size and quality. The village collects a tax of TSh 1000 ($0.60) per sack of potatoes that is sold outside the village by traders and larger farmers. The tax is reduced to TSh 500 ($0.30) per sack for small farmers who are selling directly.

A week later at Urafiki, one of the main potato markets in Dar es Salaam, sacks of potatoes were selling for between TSh 65,000 ($40) and 90,000 ($54.55) unless they were getting old. The last sacks of aging potatoes left on some of the trucks were being sold for as little as 45,000 ($27.27). Thus, the farmer selling in Isyonje gets approximately 50% of the wholesale price in Dar es Salaam. To speak of a retail price is rather tricky, as many of the potatoes are sold cooked as chips or uncooked in people's markets (often referred to as "wet markets") and genge (vegetable stalls) in small piles that are rarely weighed.

The Urafiki market comprises a large open piece of land surrounded by a wall. It is not far from the Morogoro Road that is the main route for trucks coming into and leaving Dar es Salaam including those that go through Mbeya on their way to Zambia, Malawi and the DRC. This market arose on the current site through the actions of traders who were moved by the government from next to the Morogoro Road to the market at Buguruni, which did not work for them. The status of the site remains temporary and uncertain, although it has now been in place for 15 years [34]. The potatoes are sold directly from the back of dozens off semis and some smaller trucks that are parked around the ground. Sitting with the trucks of potatoes are dalalis who do the selling for a commission of between TSh 1000 ($0.60) and 1500 ($90) per sack sold. Potatoes do not grow well in the hot and humid Dar es Salaam and all the potatoes at Urafiki come from higher altitude inland areas with cooler weather where the potatoes grow well, including Isyonje and other areas around Mbeya Region, Njombe Region, Kilimanjaro Region and some from neighboring Kenya.

Around the market grounds there are also some zinc rooves on poles under which traders pile stock on the ground. At one side, there are roughly built shelters where women cook and sell food. The Kinondoni Municipality that collects taxes from the market lists 698 traders who work there. Others have estimated that 3000 traders operate from the site daily [34], the difference perhaps due to the dalalis and assistants who work around the market in addition to the registered traders. There are also three-wheeled transporters, pedal powered ones (known as gota) and motorized ones. These are there to distribute the potatoes and other foods that have been bought at the market to outlets across the city.

4.3. Maize

Maize is the dominant staple crop in Tanzania and it is grown "almost exclusively by small-scale farmers" [16] (p. 32). The supply of maize to Dar es Salaam has been written about elsewhere [11] so we will only touch on a few salient points in this article.

Maize supplies to Dar es Salaam follow a few different routes. One is traders who transport directly from villages to the city after buying from farmers with the assistance of local dalalis, as is done with rice buying. Another route is through inland grain markets, such as Kibaigwa that is about 340 km from Dar es Salaam [11]. Farmers and local traders bring maize to the market where they meet traders from Dar es Salaam and elsewhere. Trucks coming from making deliveries in Burundi and Rwanda, pick up maize from the Kibaigwa market that is situated on the main road that links Dar es Salaam with these countries, just as the trucks from DRC and Zambia pick up rice at Ubaruku and potatoes at Isyonje (Figures 5 and 6). From Kibaigwa there is also maize which is taken to Kenya

and other neighboring countries like Uganda, although not in the same quantities that go to Dar es Salaam. Table 2 shows the prices received by different actors in the maize trade based on specific transactions that went through the Kibaigwa market in July 2015. In this process the local trader carries the risk involved in the transition from a volume based measure when buying from the farmer to a weight based measure. The sembe (maize meal) trader in Dar es Salaam carries the risk involved in the conversion of whole grains into milling, which typically results in a return of about 75 kg of sembe from a 100 kg sack of maize. All prices in Table 2 are converted to the equivalent 1 kg sembe price for comparability.

Table 2. Prices received by different actors per kg of maize based on an average conversion of 1 kg of whole maize to 0.75 kg of sembe. July 2015, maize going through Kibaigwa.

	TSh Price per kg of Maize	Gross % of Retail Price Received by Each Actor
To maize farmer	436	48.4%
To local maize trader	530	10.4%
To Dar es Salaam Trader (most of the gross income goes to transport)	580	5.6%
Sembe trader (they pay for milling)	720	15.6%
Mangi selling at the duka	900	20.0%

Note: These are gross prices that occurred on some transactions. They will vary between trades and through the seasons, as will the expenses that all actors incur.

A big difference in the production process for maize, compared to rice, is that maize milling is done closer to the place of sale and consumption, thus there are over 2000 maize mills in Dar es Salaam and many of these serve numerous sembe traders. The rice husking happens at mills close to the place of production, such as the mills in Ubaruku that serve many small farmers and traders. These differences are in part driven by the different physical qualities of the two grains. Maize stores and travels well as a whole grain, but as a flour it has to be packed in better sacks and is more easily damaged by dust and damp and is not so easily cleaned as rice. The rice remains very durable after husking and is easy to rinse before cooking. The large amount of chaff from rice and the difficulty of disposing of it also mitigates against the husking being done in town, whereas the pumba (maize bran) from the maize milling is easy to manage (less dusty) and has a ready market as feed for livestock, such as cows and chickens, that are widely kept in Dar es Salaam and the surrounding area.

Sembe is not often sold in the people's markets in Dar es Salaam, like potatoes and rice, but is sold in branded sacks direct from the mills and through wholesalers. It is sold retail either in the sack, or measured in any quantity from the grain shops and the dukas where rice is also sold. Like rice, sembe can be found in the supermarkets, but at considerably higher prices, without the flexibility of being able to buy any quantity wanted.

Maize is grown in almost every region of Tanzania with important ones for the supplies to Dar es Salaam being Morogoro, Dodoma, Manyara and Tanga. To a lesser extent, or when harvests are poor elsewhere, the maize comes from more distant maize growing regions such as Iringa, Tabora, Shinyanga, Mbeya and Rukwa [15]. The Kibaigwa market in Dodoma region is one of the largest in the country, but in 2015 supplies where seriously affected by poor weather and conflict between farmers and pastoralists in the Kiteto District of neighboring Manyara Region. Traders buying in Kibaigwa had to look for supplies in other regions. Such shifts in the focal areas of maize production have gone on historically in Tanzania, impacted by political interventions and changing weather patterns amongst other factors [35,36].

5. Discussion and Conclusions

Dar es Salaam's foodscape is based around functions with no corporate vertical or horizontal integration and little to no state coordination. Instead, this is a "symbiotic food system" based on

the activities of a multitude of small-scale and interdependent actors [11]. It is a food system that both ensures the provision of food in a way that is relatively accessible to the poorer urban eaters and creates a large number of livelihood opportunities in urban and rural areas. Unlike the relatively young alternative food networks and urban food planning initiatives that have attracted attention in Europe, North America and elsewhere [4,37,38], what we see in the foodscape of Dar es Salaam has a long track record of delivering food at a city feeding scale and doing this in a way that makes a substantial contribution to rural development. It is also not a static system; it is evolving, not least through the substantial increases in total production to keep pace with the needs of a fast-growing city. This is, therefore, an intriguing alternative to the globally dominant agri-business based food system.

This is a foodscape that addresses many of the challenges of "Contemporary urban food provisioning" as described by Wiskerke and Viljoen [8] (pp. 21–25) and has the potential—due to the scale and number of actors involved in relatively equitable relations and low external input food production—to address them further. These include: the pressure on farm incomes; loss of skills and knowledge from the farming and food production sector; environmental degradation; food waste; fossil fuel dependency; climate change; water stress; loss of biodiversity; and soil degradation [8] (pp. 21–25).

The picture of the foodscape that emerges is one that is not only disbursed across a wide geographic area, but is also shifting in response to a range of factors. For example, transport routes for other goods create conditions for particular flows of food. Changing weather patterns make some areas more or less viable for certain crops. Conflicts and politically driven interventions shape where certain crops are grown. Particular infrastructure investments, such as irrigation schemes in Mbarali District and improved roads to link to neighboring countries create nodes of production and distribution. Frequently, the infrastructure that has reshaped the foodscape was not intended for that purpose, such as roads built for other reasons. Even the irrigation schemes where so much rice is grown in Mbarali are not being used in the way that the state intended when they were first constructed and later privatized them. Small and medium-scale farmers–linked to similarly scaled processing, distribution and retailing–have shown a remarkable resilience and ability to respond to new opportunities and challenges.

The food system feeding Dar es Salaam is not the result of direct interventions by the state or other institutions. It has rather evolved around five main factors. First is the demand for food in Dar es Salaam that has created new markets for farmers and others in the foodscape. Second, is a common set of cultural repertoires among the social actors with symbiosis as a core ordering principle that enables the functioning and growth (through replication) of the food system without the need of any centralized coordination. Third, is key infrastructure, such as the roads and irrigation systems for rice growing some built for purposes of food production, others not. Fourth, is technology, such as the rice and maize milling machines, accessible to local business people, including farmers, and of a production scale that fits with the actors in the food system. Fifth, are symbiotic links with other sectors, such as the transportation of goods from the harbor to neighboring countries that ensure trucks are available to bring food from rural Tanzania to the city.

The Dar es Salaam foodscape is not confined to the boundaries of the metropolitan region and cannot be called "local". It transports food over quite long distances, but it is nevertheless largely detached from the global food circuits that have been widely criticized for their lack of sustainability and tendency to disconnect the eaters of food from producers and the production process. It is also a food system that has no large corporate actors involved and does not have the same anonymous character of the corporate foodscape. This foodscape, like many short food supply chains, is "essentially based on *face-to-face interaction* as a mechanism for aligning producer—consumer networks." [4] (p. 399). The difference is that these interactions are not directly between farmers and eaters, rather they are face-to-face relations of familiarity and trust between interdependent actors at all stages of the foodscape [11]. Renting et al. argue that the more spatially disbursed supply chains can still be "short" as "it is not the distance over which a product is transported that is critical, but the fact that it

is embedded with value-laden information when it reaches the consumer" [4] (p. 400). In this case, the value-laden information is not communicated through printing and packaging or safeguarded by "institutional conventions", rather it is carried through the direct contact between people in the foodscape and the values embedded in common cultural repertoires. The "link between quality attributes of the product and its *place of production*" [4] (p. 401) is also a strong factor, at least in rice buying, with rice from Mbeya region widely regarded as the best.

Dar es Salaam's city region foodscape does not involve the high level of concentration of ownership and power in a few hands that has come to characterize the corporate food system resulting in a greater and greater squeeze on the return to farmers [39–41]. The greatest point of concentration comes with the transport, due to the semi being the most efficient per-ton means of transport and the capital cost of acquiring a semi. Even at that point in the food system, the facilitation by dalalis and the collaboration between traders, involves the shared use of these transport resources minimizing the power any one actor has over that part of the food system. One result of this is the large number of people who derive their livelihoods from economic activities in the system and the other is the reasonable return to farmers as a proportion of the retail price of the foods.

The Dar es Salaam foodscape clearly shows no regard for administrative boundaries, apart from the national borders. The specific requirements of each crop and the quantities needed to feed such a city make it unrealistic to try and meet the food needs through short food supply chains or within the administrative region of the city region or even the neighboring regions. There are no suitable growing areas for potatoes within hundreds of kilometers of Dar es Salaam that is situated on flat land on the hot and humid coast of the Indian Ocean. Maize can be grown, but these are not optimal conditions for it. While there is land around the city and a climate suitable for rice production, very little of that land is available. Much land is, of course, built on and there are other crops and food products, such as green vegetables, milk and eggs, that are better suited for production and distribution in and around Dar es Salaam [42,43]. These have a long history of production in the city and play an important role in responding to some of the cities food, nutrition and livelihood needs [43–45]. The fact that certain food products lend themselves to a very localized foodscape does not mean such a foodscape can effectively meet the whole or even the bulk of urban food needs. Just as importantly there is production potential elsewhere that can be utilized and it would be a disaster for farmers, processors and traders, who currently supply food to the city, if they were to lose that opportunity.

Policy making needs to take a holistic approach to create a more enabling environment for the changing and spatially dispersed foodscapes that can meet the food needs of cities in more equitable ways. This needs to go beyond a narrow project and urban food planning approach that only looks within the city or city region boundaries to rather consider the range of links and actors through which the food system contributes to and is enabled by other economic and social circuits.

We suggest that the city region foodscape be looked at as the space defined by the relations that produce and bring food to the city, not as the food practices within a particular administrative area. These relations may be spatially proximate or extended. Local production and distribution circuits have certain environmental and social advantages, but the analysis of any food system around which a foodscape exists should not start with narrow assumptions about the superiority of the local over the more spatially dispersed and should consider the contribution of the system to meeting food needs in the city as well as livelihood needs in the rural hinterlands. With this as a starting point, following the food [29]–starting with the eaters and the foods most important to them and following these foods back to the primary producers—becomes an important research methodology for understanding existing foodscapes. It would be possible to apply this and other approaches used for our research [32] to usefully map foodscapes through shorter interventions than the lengthy ethnographic work that informed this paper.

We believe that more research on existing foodscapes that are not corporate dominated will reveal further valuable lessons about alternatives to the globally dominant agro-industrial food system. Where

agro-industrial systems are dominant, attention needs to be given to the possibility of developing the spaces for alternatives, including those that fill a middle-ground between the local and the global.

Acknowledgments: We would like to thank the social actors in the Dar es Salaam "city region foodscape" who feed the city and from whom we have learned much. Thank you to the organizers of the "Agriculture in an Urbanizing Society" conference held in Rome in September 2015 and in particular the organizers of the working group on "Conceptualizing and Assessing City Region Food Systems" for creating the space for us to discuss some of the issues in this paper.

Author Contributions: Marc C. A. Wegerif carried out the field research, analyzed the data, developed ideas and drafted the article. Johannes S. C. Wiskerke was involved in the analysis of data and development of the ideas, and contributed to writing and refining the article. All pictures in this article were taken by Marc C. A. Wegerif.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Zingaretti, N. Agurbrome 2015. Available online: http://www.agricultureinanurbanizingsociety.com/?cat=1 (accessed on 11 August 2016).
2. Wegerif, M.C.A. Navigating the Maize to the City. Available online: http://vbn.aau.dk/ws/files/254471288/Book_of_Proceedings_FINAL.pdf#page=505 (accessed on 21 June 2017).
3. Maye, D.; Kirwan, J. Alternative food networks. *Sociopedia ISA* **2010**. [CrossRef]
4. Renting, H.; Marsden, T.K.; Banks, J. Understanding alternative food networks: Exploring the role of short food supply chains in rural development. *Environ. Plan.* **2003**, *35*, 393–411. [CrossRef]
5. Born, B.; Purcell, M. Avoiding the local trap: Scale and food systems in planning research. *J. Plan. Educ. Res.* **2006**, *26*, 195–207. [CrossRef]
6. Forster, T.; Escudero, A.G. *City Regions as Landscapes for People, Food and Nature*; EcoAgriculture Partners, on behalf of the Landscapes for People, Food and Nature Initiative: Washington, DC, USA, 2014.
7. Hebinck, P.; Schneider, S.; van der Ploeg, J.D. The construction of new, nested markets and the role of rural development policies: Some introductory notes. In *Rural Development and the Construction of New Markets*; Hebinck, P., van der Ploeg, J.D., Schneider, S., Eds.; Routledge: London UK; New York, NY, USA, 2015; pp. 1–15.
8. Wiskerke, J.S.C.; Viljeon, A. Sustainable urban food provisioning: Challenges for scientists, policy makers, planners and designers. In *Sustainable Food Planning: Evolving Theory and Practice*; Viljoen, A., Wiskerke, J.S.C., Eds.; Wageningen Academic Publishers: Wageningen, The Netherlands, 2012; pp. 19–35.
9. Wiskerke, J.S.C. On places lost and places regained: Reflections on the alternative food geography and sustainable regional development. *Int. Plan. Stud.* **2009**, *14*, 369–387. [CrossRef]
10. Maye, D. Moving alternative food networks beyond the niche. *Sociol. Agric. Food.* **2013**, *20*(3), 383–389.
11. Wegerif, M.C.A.; Hebinck, P. The symbiotic food system: An 'alternative'agri-food system already working at scale. *Agriculture* **2016**, *6*, 40. [CrossRef]
12. City Mayors. The World's Fastest Growing Cities and Urban Areas from 2006 to 2020. Available online: http://www.citymayors.com/statistics/urban_growth1.html (accessed on 2 August 2016).
13. National Bureau of Statistics. *2012 Population and Housing Census*; National Bureau of Statistics, Ministry of Finance: Dar es Salaam, Tanzania, 2013.
14. Davis, M. *Planet of Slums*; Verso: London, UK, 2006.
15. National Bureau of Statistics. *Volume II: Crop Sector—National Report*; Government of the United Republic of Tanzania: Dar es Salaam, Tanzania, 2012.
16. The Southern Agricultural Growth Corridor of Tanzania (SAGCOT). *Appendix IV: Value Chain and Market Analysis*; Southern Africa Growth Corridor of Tanzania: Dar es Salaam, Tanzania, 2010.
17. The World Bank. *Agribusiness Indicators: Tanzania*; The World Bank: Washington, DC, USA, 2012.
18. Food and Agriculture Organization of the United Nations (FAOSTAT). Food and Agriculture Data. Available online: http://fenix.fao.org/faostat/beta/en/#home (accessed on 19 August 2016).
19. East African Community. *Common External Tarrif 2012 Version*; East African Community: Arusha, Tanzania, 2012.
20. Ministry of Finance and Planning. Import Duty. Available online: http://www.mof.go.tz/index.php?option=com_content&id=41:import-duty&Itemid=56 (accessed on 1 August 2016).

21. Global Hunger Index. Tanzania. Available online: http://ghi.ifpri.org/countries/TZA/ (accessed on 23 July 2016).
22. Mikkelsen, B.E. Images of foodscapes: Introduction to foodscape studies and their application in the study of healthy eating out-of-home environments. *Perspect. Public Health.* **2011**, *131*, 209–216. [CrossRef] [PubMed]
23. Freidberg, S. Perspective and power in the ethical foodscape. *Environ. Plan. A.* **2010**, *42*, 1868–1874. [CrossRef]
24. Lake, A.A.; Burgoine, T.; Greenhalgh, F.; Stamp, E.; Tyrrell, R. The foodscape: Classification and field validation of secondary data sources. *Health Place.* **2010**, *16*, 666–673. [CrossRef] [PubMed]
25. Sobal, J.; Wansink, B. Kitchenscapes, tablescapes, platescapes, and foodscapes. *Environ. Behav.* **2007**, *39*, 124–142. [CrossRef]
26. Steel, C. *Hungry City: How Food Shapes Our Lives*; Random House: London, UK, 2008.
27. Wegerif, M.C.A. Exploring sustainable urban food provisioning: The case of eggs in Dar es Salaam. *Sustainability* **2014**, *6*, 3747–3779. [CrossRef]
28. Cook, I. Follow the thing: Papaya. *Antipode* **2004**, *36*, 642–664. [CrossRef]
29. Cook, I. Geographies of food: Following. *Prog. Hum. Geogr.* **2006**, *30*, 655–666. [CrossRef]
30. Latour, B. *Reassembling the Social: An Introduciton to Actor-Network-Theory*; Oxford University Press: Oxford, UK, 2005.
31. Jervis, S.M.; Lopetcharat, K.; Drake, M.A. Application of ethnography and conjoint analysis to determine key consumer attributes for latte-style coffee beverages. *J. Sens. Stud.* **2012**, *27*, 48–58. [CrossRef]
32. Wegerif, M.C.A. Feeding Dar es Salaam: A Symbiotic Food System Perspective. Ph.D. Thesis, Rural Sociology, Wageningen University, Wageningen, The Netherlands, 2017.
33. Greco, E. Landlords in the making: Class dynamics of the land grab in Mbarali, Tanzania. *Rev. Afr. Political Econ.* **2015**, *42*, 225–244. [CrossRef]
34. Mbisso, D. *Petty trading in Marketplaces: Space Generation, Use and Management at Temeke Stereo Marketplace in Dar es Salaam, Tanzania*; Department of Architecture, Chalmers University of Technology: Gothenburg, Sweden, 2011.
35. Flynn, K.C. *Food, Culture and Survival in an African City*; Palgrave Macmillan: New York, NY, USA, 2005.
36. Bryceson, D.F. *Liberalizing Tanzania's Food Trade*; UNRISD in Association with James Currey, Heinemann and Mkuki na Nyota: London, UK; Portsmouth, NH, USA; Dar es Salaam, Tanzania, 1993.
37. Nasr, J.; Komisar, J. The integration of food and agriculture into urban planning and design pratices. In *Sustainable Food Planning: Evolving Theory and Practice*; Viljoen, A., Wiskerke, J.S.C., Eds.; Wageningen Academic Publishers: Wageningen, The Netherlands, 2012; pp. 47–58.
38. Derkzen, P.H.M.; Morgan, K. Food and the city: The challenge of urban food governance. In *Sustainable Food Planning: Evolving Theory and Practice*; Viljoen, A., Wiskerke, J.S.C., Eds.; Wageningen Academic Publishers: Wageningen, The Netherlands, 2012; pp. 61–66.
39. Greenberg, S. Corporate Concentration and Food Security in South Africa: Is the Commercial Agro-Food System Delivering? Institute for Poverty, Land and Agrarian Studies, University of the Western Cape: Cape Town, South Africa, 2015.
40. Van der Ploeg, J.D. *The New Peasantries: Struggles for Autonomy and Sustainability in an Era of Empire and Globalization*; Earthscan: London, UK, 2008.
41. Patel, R. *Stuffed & Starved*; Black Inc.: Melbourne, Australia, 2007.
42. Wegerif, M.C.A. Green vegetable supply in Dar es Salaam. *Urban Agric. Mag.* **2015**, *29*, 65–67.
43. Lee-smith, D. Cities feeding people: An update on urban agriculture in equatorial africa. *Environ. Urban.* **2010**, *22*, 483–499. [CrossRef]
44. Conway, K. *Building the Food secure City: Incremental Progress Brings about Change*; IDRC: Ottawa, ON, Canada, 2006.
45. Jacobi, P.; Amend, J.; Kiango, S. Urban agriculture in Dar es Salaam: Providing an indispensable part of the diet. In *Growing Cities, Growing Food: Urban Agriculture on the Policy Agenda*; Deutsche Stiftung fur internationale Entwicklung (DSE): Feldafing, Germany, 2000; pp. 257–283.