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Food systems at the rural-urban interface

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ABSTRACT

Promoting better market access and market performance for smallholder agricultural producers and the provision of access to better quality and lower price food for the majority of the world's population requires the strengthening of rural-urban linkages and putting 'place-based development' at the centre of policy and investment in food systems. Whilst traditional markets at the level of villages, towns and small and medium cities continue to be the entry point into the food system for the large majority of the world's smallholders, profound, and in some regions rapid, changes are taking place in the food system from production to consumption. These changes have implications on local economic development within functional rural-urban spaces, on urban and rural livelihoods, and on food security and nutrition.

The effects of food system change include: the exclusion of large numbers of smallholders from modern and more dynamic markets; the concentration of a greater share of value added in the downstream segments of the food system; the weakening of traditional wholesale and retail; shifts in the spatial location of food industry investment in primary, secondary and tertiary preparation and processing; and the increased availability of highly processed food in both rural and urban areas. With these changes, and with appropriate food system related policy, investment and innovation in functional rural and urban spaces, new economic and employment opportunities can emerge depending on how the food system is structured from production through to consumption. The food system should be optimized for distributional gains and with positive impacts on the local economies, on rural and urban livelihoods, on food access and security, and on public health.

Keywords: Food systems, rural-urban interface, food retail markets, short chains, functional rural and urban spaces

1. INTRODUCTION

Whilst the demand for food is increasing in unprecedented terms, the food basket of the consumer is also changing with an increased demand for more diversified diets, changes in food preparation patterns and an increase in consumption of highly processed foods. These changes are taking place at a time of rapid urbanization, agrifood market system transformation, rural factor market transformation, and intensification of farm technology and thereby agricultural transformation (Reardon and Timmer, 2014). The pace and depth of these interlinked transformations differs between regions and whilst fairly rapid in Latin America and Asia, are in the early stages in much of Africa (Reardon and Berdegué, 2006; World Bank, 2007a).

This paper discusses the changes which together shape, and are shaped by, change taking place within the entire food system[1] from production to consumption and the factors influencing these changes. We focus discussion on the implications of the observed food system trends on the increasingly diffuse and porous interface of rural and urban societies and on rural-urban linkages. The work is based on secondary data and sources.

2. CHANGES IN THE FOOD SYSTEM AND INFLUENCING FACTORS

2.1 Increasing incomes, population growth and urbanization

Population growth combined with urbanization and rising incomes in particular in urban areas is increasing the demand for food with gains in poverty reduction in many parts of the world leading to an increase in capita food consumption. However, the majority of the world's poor, perhaps as many as 70% live in towns and small and medium cities and the rural areas more proximate to them[2]. Poverty rates are also higher in such small and medium cities than in larger urban agglomerations (Ferré et al., 2012)[3]. Households in the most prosperous areas of developing countries have an average consumption almost 75% higher than that of similar households in the lagging areas of these countries (World Bank, 2013).

By 2050 in order to feed this larger, more urbanized and richer population, food production must increase by 70% (FAO, 2009). The result of urbanization is that today 6.8 urban persons depend on each farm compared to 4 per farm only 25 years ago and an estimated 11 per farm by 2050[4].

Globally, more people live in urban areas than in rural areas, with 54% of the world's population residing in urban areas in 2014 (UN, 2014). In 1950, 30% of the world's population was urban, and by 2050, 66% of the world's population is projected to be urban. However, such urbanization has not been exclusively or even mainly in large cities. Drawing on the recent review by Berdegué et al. (2014), it was noted that almost two billion people or half the world's urban population reside in towns and small and medium cities of up to half a million inhabitants; this is about 27% of the world's total population[5] (Figure 1)[6]. An

[1] We define the food system to include all activities involving the production, processing, wholesale, retail, logistics, transport, storage and consumption of human food. It includes all scales of production, food types and levels of processing as well as the interrelationships between modern and traditional systems. It reaches out to the debates on food policy, food security, food safety, nutrition and public health as well as changing patterns of consumer demand.

[2] This estimate is only a rough approximation, based on partial data on the spatial distribution of the rural poor in the World Development Report 2008 (2007b) and IFAD's Rural Poverty Report 2011, and data on the distribution of urban poverty in Ferré et al., 2012. It is surprising how little we know about the detailed spatial distribution of rural and urban poverty beyond large categories like rural vs urban, or by states or provinces within countries.

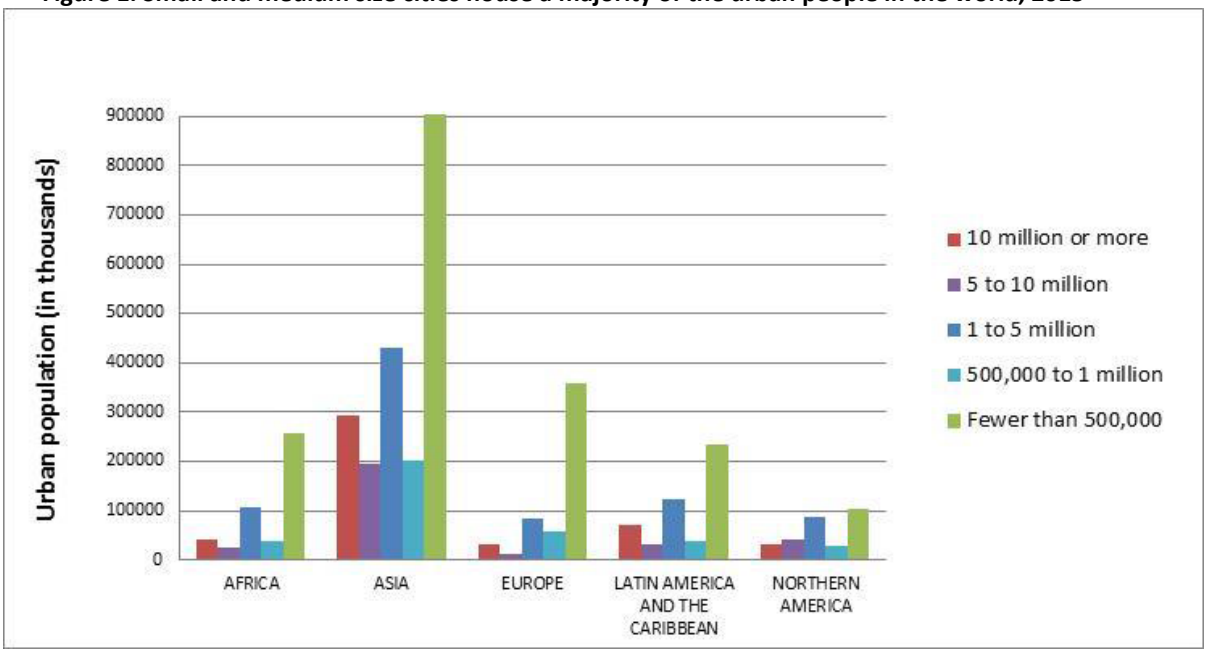
[3] Around the turn of the century, about 950 million people lived in urban slums (UN Habitat 2005), but we do not know how many lived in slums of cities of different sizes.

[4] Urban population based on UNDESA (2014) and the number of farms of all sizes at around 570 million worldwide and with no change over the time period.

[5] 43% of urban citizens live in locations of less than 300,000 people (most of which are actually towns with as little as 2,000 inhabitants), and an additional 7% in cities of 300,000 to 500,000

additional 3.4 billion people are classified as living in rural areas, or 46% of our planet's inhabitants[7].Thus 5.5 billion persons live in the increasingly diffuse and porous interface of rural and urban societies.

Figure 1. Small and medium size cities house a majority of the urban people in the world, 2015



Source: Updated by the authors with data from the World Urbanization Prospects (UNDESA, 2014), following Roberts, 2014

Almost every country shows some degree of continuum between isolated rural areas that have very weak interactions with urban centres, rural-urban functional territories, peri-urban rural zones in the shadow of medium and large urban agglomerations, and larger cities that exchange with an indeterminate number of rural areas over long distances. The distribution of people and reciprocal flows of social and economic goods and services across these types of spaces including all those associated with the food system is by no means static, it changes with development, with the rate of urbanization, and with the degree to which the urban population is concentrated in one or two cities or is more distributed among a larger group of primary, secondary and tertiary cities (Berdegué, Proctor and Cazzuffi, 2014).

The underlying question for society is how to secure and foster sustainable food systems that meet the demands of peoples living in mega cities, small and intermediate cities and in the diverse and porous space between such towns and cities and rural areas, and in remote rural locations. To ensure equity in food access and food security and with the urban poor disproportionately concentrated in intermediate cities and in this diffuse and porous space between rural and urban, how populations including the poor in these places access food and how the food systems are structured to best meet their needs has to be better understood and differentiated.

2.2 Changing dietary patterns

Increased income and globalization of food is changing dietary patterns. Much of the structural change concerns the rapid increase of consumption of livestock products (meat, milk, and eggs), vegetable oils and sugar as sources of food energy. These three food groups together now provide 29% of total food

[6] This is by no means a characteristic only of developing countries. Bell and Jayne (2009) cite Clancey (2004) to note that in the USA almost 45 million people live in cities with a population of over 250,000, another 40 million live in places of between 50,000 and 250,000 and a further 40 million in cities of between 10,000 and 50,000.

[7] Data in this paragraph are from the 2014 revision of the World Urbanization Prospects (United Nations, 2014).

consumption of the developing countries. Their share is projected to rise further to 35% in 2030 (in industrialized countries the share has been around 48% for several decades). These changes have not been universal however and wide inter- and intra-country diversity remains in the share of different commodity groups in total food consumption (FAO, 2012).

Urban residents typically have lower shares of food expenditure in total household expenditure compared with rural residents—but have sufficiently higher incomes that enable the urban consumers to spend more on food per person than rural consumers (Reardon and Timmer, 2014). Higher expenditure groups show a shift towards higher value added processed foods (in India, Morisset and Kumar (2011); in China, Zhai et al., (2014); or in East and Southern Africa, Tschirley et al., (2015).

A pattern which broadly applies across regions, illustrated with the case of Asia, is that of the two stages of diet diversification (Joshi et al., 2007). The first is the "income-induced diet diversification", where economic growth leads to an increased variety of foods consumed, but the diet maintains mostly traditional features. The second is that of "diet globalization", also known as “nutrition transition" (Hawkes, 2006; Keats and Wiggins, 2014), where a diet high in fats and sweeteners is promoted through the opening up of trade, foreign investment, and is supported through shifts in global and local food industry production systems and marketing as well as changes in household lifestyles and choice. This coincidentally is giving rise to an increase in incidence of chronic non-communicable diseases including hypertension and heart disease, diabetes and cancers, often associated with obesity and high salt and sugar intakes. Although hesitant, policy makers in some countries have been active in efforts to influence consumer choice and thereby health outcomes. Reviewed in Popkin and Ng (2006) are examples of macroeconomic levers used to change the relative pricing of selected foods (in particular the dairy sector) in Finland and Norway and the linkage of these changes with positive change in nutrition-related chronic disease outcomes and from South Korea policies that foster the consumption of healthier diets with major associated health improvements. Rural nutrition education and the linking of local contracting and procurement of fresh produce for improved school feeding programs are examples from Brazil of national and local public policy responses to obesity (Gómez, 2015).

Energy-dense foods are relatively cheap sources of energy but typically have a low nutrient density. As noted in the Southern Africa context “…industrial food processing and food supply systems have replaced traditionally nutritious foods (still available in many rural areas) with nutritionally inferior, energy-dense, but cheaper foods and drink” (Frayne, et al., 2014). People with a low income select a relatively less healthy diet, and we know that low income people live disproportionally in rural areas and in towns and small and medium cities. Tschirley et al. (2015) report that in Eastern and Southern Africa, the pattern of penetration of “highly processed food” is similar in both rural and urban areas. In China, Liu et al. (2014) observe that rural communities have been limited in their ability to diversify their food baskets and thus improve nutritional balance, by high electricity and transportation costs (associated with the handling of perishable foodstuffs) and low infrastructure development and modernization. In a study to examine the effects of supermarket penetration on food consumption patterns in small towns in Kenya, Rischke et al. (2015) found that supermarket purchases increase the consumption of processed foods (this includes primary processing e.g. milling) at the expense of unprocessed foods. Further that supermarket purchases increase the per capita calorie availability, which is associated with lower prices paid per calorie – in particular for processed foods.

2.3 Structural change in the agrifood systems

Change is taking place in the intermediate segments of value chains between the consumers and producers, driven in part by these shifting consumer demand patterns, by competitive strategies among firms in these segments, and by the immense technological changes in logistics and supply-chain management. A number of reviews give insights into these transformations within the food supply systems for the different regions including for Asia (Reardon et al., 2012a; Reardon and Timmer, 2014); Africa (Reardon et al., 2013) and Latin America (Berdegué et al., 2004; Reardon and Berdegué, 2002).

Some of the changes most relevant to food systems in the rural-urban interface include the following:

- The pattern of spatial and social diffusion of modern retail (supermarkets, chain retail) and fast food outlets/chains starts in the larger cities and eventually reaches almost all neighbourhoods in all but the smallest towns (Reardon et al., 2012b).
- Secondary and tertiary stage food processing[8] penetrates into modern retail (hypermarkets, supermarkets, chain stores) accompanying the pattern of spatial and social diffusion of modern retail as well as into the traditional retail sectors (formal and informal).
- Changes in the organization of procurement systems of supermarket chains and agri-processing businesses, toward centralized systems and the use of specialized and dedicated wholesalers and preferred supplier systems often with accompanying private quality standards. These require investment in technological change and 'upgrading' at the producer level and impact on the type and scale of producer included in these supply chains – thus impacting on location of chain activity as well as location and type of producer.
- Modern food systems increasingly require an integrated packing, grading, processing and transport and logistic infrastructure including cold chain. These changes in turn impact on the location of post-production infrastructure and on employment in for example transport and logistics, commission agents, wholesaling, warehousing, and processing facilities. These often align a concentration of related businesses such as agri-processors, transport companies and cold storage operatives. In some cases, these related enterprises are fully integrated within the business model for example in the poultry sector in South Africa where product production and finishing operations also include feed mills[9].
- The growth of modern retail and concentration in agri-processing changes the organization and rules of food production and procurement and as such creates many more hurdles that the vast majority of smallholder producers cannot pass through resulting in massive exclusion. Thus large numbers of smallholders are excluded from these new and more dynamic markets (which overtime may become dominant in the country). Those who can gain access to them, frequently do benefit.
- Change is also taking place at the traditional wholesale market level impacting on the relationship between the producers and the market often with the exclusion of customary farm gate agents. This has been mostly stimulated through domestic public and private sector investment including market liberalisation policies for example in India where wholesalers may now contract directly with farmers (Chand, 2012).

The debate on changes within value chains has focused mostly on the implications of the rise in the consumption of high-value crops and livestock (for example Delgado et al., 2008; Gulati et al., 2007); the rapid emergence of modern retail and its impact (for example Reardon et al., 2009; 2012b); innovation to secure smallholder inclusion in modern retail (for example Biénabe et al., 2011) and on the effect of food safety requirements on global value chains (Henson and Reardon, 2005; Swinnen and Maertens, 2006). Innovations midstream (intermediating) and downstream in the value chain which have impacts on agricultural performance and thus on producers, on chain actors and on consumers, have been the subject of more recent review and policy debate (including Swinnen, 2007; Reardon et al., 2009; and Reardon et al., 2012b). There has been less study on the effects of market changes midstream in domestic value chains, both modern and traditional (and their interactions), including the changing roles of chain actors and number and scale of actors. In particular there is a lack of study on the spatial aspects (in for example rural locations, towns and the large urban peripheries) of food market infrastructure investment including collection hubs, cold storage, packaging and grading facility, changes in wholesale and retail market structures, etc. and on the impact of these changes on local employment and labor including skills demands.

[8] Primary processing includes basic cleaning, grading and packaging as in case of fruits and vegetables. Secondary processing includes alteration of the basic product as in case of milling of cereals. Tertiary processing includes adding together multiple ingredients leading to ready-to eat food like bakery products, ready meals and snacks.

[9] http://www.thepoultrysite.com/articles/1786/south-africa-broiler-production-and-consumption (accessed April 17, 2016)

The penetration of processed (secondary and tertiary) foods has diffused from large cities to small cities including into both modern and traditional retail and is often heavily promoted through multinational agrifood corporations. Modern food manufacturers are leveraging traditional distribution networks (modern-to-traditional retail including formal and informal), substantially increasing access to low-priced processed/packaged foods in rural areas and low-income urban neighborhoods with mixed impacts on malnutrition (Gómez and Ricketts, 2013).

2.3.1 Change in retail

The **pace and penetration of modern retail** is central to the debate on the changing food system. This pace and penetration however differs by region with Latin America and South Africa showing a share of modern food retail in overall food retail of over 50%; countries in Southeast Asia (outside transition countries like Vietnam) and Central America within the range between 30–50%; and China, Vietnam, India, and sub-Saharan Africa (excluding South Africa) at below 10% (Reardon and Berdegué, 2006). Such penetration has implications on transition of traditional retail structures, on consumer choice and food access, and on local employment both at the retail level itself but also throughout the associated food system.

Informal and traditional retail continue to play a central role. Small shops, street markets, hawkers, food stalls and other players in the informal and traditional food economy structures each have their own dynamic, and service particular groups of urban consumers. They are central to many urban food supply and distribution systems and remain a major source of informal and formal employment often linked with rural households either as producers or as part of multi-locational non-farm livelihoods of rural households in particular those households adjacent to smaller urban centres. They are a major source of food for the urban poor who often purchase very small quantities on a daily basis and/or who purchase prepared street food as a preferred option given access to and costs of water and energy for cooking in for example slum areas or in poorly provisioned rental properties of migrant workers.

In a number of countries for example Indonesia, traditional retail remains central to consumer purchasing behavior. Within Southern Africa significant regional and indeed local variation exists in the relative importance and role of modern versus traditional retail in urban locations. See Box 1 for examples.

Box 1. Retail choice and consumer purchasing behaviour

In Indonesia and in three cities: Surabaya, Bogor, and Surakarta (representing large, medium, and small cities, respectively), the shopping habits at each of seven types of food retail outlets: hypermarkets, supermarkets, minimarkets (convenience stores), small shops (warung), semi-permanent stands, traditional wet markets and peddlers, were surveyed. Minot et al. (2013) find that 73% of urban consumers use modern retail outlets, defined to include hypermarkets, supermarkets, and minimarkets, while virtually all (99%) also use traditional food outlets. Traditional markets are considered the best place to get good prices, while warung and peddlers are appreciated for their convenience. The main reasons for shopping at supermarkets and hypermarkets include proximity to entertainment options, discounts, high quality of food, and cleanliness.

In the Southern Africa region, supermarkets are growing rapidly in importance as a source of basic foodstuffs for the urban poor. Across the region as a whole and in the major cities -with some exceptions- , 79% of poor urban households normally source some of their food from supermarkets. In South African cities such as Cape Town, Johannesburg and Msunduzi, the figure is over 90%. In many cities, small outlets are the first to feel the pressure from supermarket expansion (Crush and Frayne, 2011). The picture in Maputo, Mozambique, is however very different. Almost all the households regularly obtain food from informal sellers and over 90% do so at least once a week and many on a daily basis. Over three-quarters of the households never shop at supermarkets. Small shops (including independent grocers, butcheries and bakeries) are also regularly patronized (Raimundo et al., 2014).

Ongoing and low level harassment of the informal food trade sector in urban centres is ever present with the often punitive regulations imposed on the informal street traders and food vendors. This contrasts with the absence of regulatory controls on supermarket expansion in urban markets (Crush and Frayne, 2011), including corruption by large multinationals, as in the example of Walmart in Mexico that obtained permits for new stores through widespread bribes[10].

Whilst towns and small and medium cities are closer to the locations of production in rural areas which might offer food system advantages, we speculate that poorer food retail market infrastructure and provision prevails in smaller towns. Work in Southern Africa indicates that populations in small and lower income towns may have, and increasingly so, fewer choices available to them for the purchase healthy foods at affordable prices (Temple and Steyn, 2011; Crush and Caesar, 2014).

Urban and rural food consumption is not only influenced by purchased goods. A yet indeterminate but probably significant number of households are spatially stretched across rural and urban spaces, with different household members at different times living and working in different areas, while retaining basic household functions including the production of food for home consumption; this impacts on household food access and food security patterns in both rural and urban locations through food transfers. For example almost one in three of the poor urban households surveyed in eleven Southern African cities said they receive food from relatives or friends outside the city, and 11% of rural households were recipients of urban to rural food transfers (Crush, 2012).

2.3.2 Changes in mid-stream

Modern retail and food processing calls for closer linkages between the producers and the agribusiness sector for the timely delivery of the required quantities and qualities of raw materials, to enable the integration of quality assurance systems and private standards, and to provide the necessary flexibility to be responsive to the changes in the consumer markets. A primary objective of modern firms is to reduce as many intermediaries as possible breaking away from traditional and often multiple transaction stages, hence "*dis-intermediation*".

In particular, modern retail procurement is shifting away from the use of traditional wholesale markets that are often located in towns and small and medium size cities to sourcing directly from preferred suppliers including dedicated wholesalers, food companies, producer organizations, or contract farmers.

There are multiple examples of food system models where "*dis-intermediation"* has shortened the number of actors in the supply chain including bypassing of the traditional wholesale market such as: virtual integration 'Hub and Spoke' model of e-Choupals, India (Annamalai and Rao, 2003); value chains model with rural collection centres and rural business hubs, Reliance Retail Ltd, India (Pfitzer and Krishnaswamy, 2007; Parwez, 2014); contract production for onward distribution, McCain Foods India (Sharma et al., (2012) and Saung Mirwan Ltd, West Java Indonesia (World Bank, 2007a); tiered cooperatives Amul Cooperative, India (Sharma et al., 2012); and innovation on smallholder market inclusion in modern retail (Biénabe et al., 2011) including direct retail store to grower contracting such as Thohoyandou Spar Supermarket, South Africa (Romanik, 2008). Whilst these new relationships between the producer and the food chain actors may bring new opportunities (higher prices, market stability) for some producers – those who are unable to meet the exacting requirements are excluded (Birthal et al., 2005; Biénabe et al., 2011). Current trends indicate that this smallholder market exclusion will continue.

An important related trend is the diffusion of activities in the intermediate segments of food systems into small and medium cities, as road infrastructure and services expand (e.g. electricity,

[10] According to sources like the New York Times, Fortune magazine and the Wall Street Journal http://www.nytimes.com/2014/06/05/business/after-walmart-bribery-scandals-a-pattern-of-quiet-departures.html?_r=0
http://www.wsj.com/articles/wal-mart-bribery-probe-finds-little-misconduct-in-mexico-1445215737

communication); this includes the locations where first stage transactions take place and where primary and secondary processing is undertaken. Geographic proximity of these first stage activities can bring new employment opportunities in for example grading and packing facilities, warehousing, mills, logistics and transport which are centred in rural areas or nearby towns and small cities. However other urban centres previously active in food market systems in particular through traditional wholesale markets for example, may now be fully or partially by-passed.

Traditional food system structures continue to matter. For many food staple commodities such "*dis-intermediation*" is not yet observed for example in much of sub-Saharan Africa and South Asia where traditional market structures abound which engage multiple actors along the market chains as shown in the case of the cowpea sector in Burkina Faso (Box 2). This structure whilst highly fragmented creates livelihoods for many thousands of households and in particular women.

Box 2. Multiple actors along basic food chain in rural and urban locations: Cowpeas in Burkina Faso

Some 13,000 tons of cowpeas are produced annually in the Sahel Region of Burkina Faso, destined for Ouagadougou and for export. This involves 21,000 farmers, 325 local traders (primary collectors), 14 wholesalers operating in rural markets in the production zone, four wholesalers based in Ouagadougou, as well as 273 retailers and 546 food processors in urban areas. In terms of value added, 95% of the total value added remains in the Region and 50% of total value of the wages generated along the chain are paid in the Sahel Region. In the East Region where a larger share of cowpea is processed and consumed in the regional capital, Fada N'gourma (52,000 population), there are some 200 women processors making a living from the production and sale of fried cowpea as a food snack.

Source: Lançon et al., 2009

Wholesale markets located on towns and small and medium cities play a central role in traditional food market systems and some have adapted to meet the needs of and integrate with modern food systems. Some wholesalers operating within wholesale markets have become "modern wholesale actors and logistics companies" undertaking a variety of logistics tasks including wholesaling, warehouse management, information management systems integrated with retail and distribution systems of other companies, cold chain development and packaging, whilst others continue with more limited and traditional functions. Such "modern wholesalers" integrate with modern retail and the food processing industries as well as traditional retail. Even within the traditional food system, change is taking place where for example in the case of India with liberalization in some States the wholesale markets buyers are now able to contract production directly with producers and eliminate the first stage village commission agents/traditional village trader.

Whilst wholesale markets remain central to both the modern and traditional food systems in many countries many such markets located in small towns and large cities alike are poorly governed and lack adequate infrastructure and basic services (Box 3).

Box 3. Public wholesale markets

The case of India

The traditional segment of the wholesale sector in India is transforming. Whilst supply chains are *shortening* as village brokers and commission agents (*arhtiyas*) play a reducing role and as *mandi* (public wholesale markets) wholesalers buy direct from farmers (Reardon and Minten, 2011), this transformation is incomplete. Agricultural marketing suffers from inefficiency and a disconnect between the prices received by producers and those paid by consumers, fragmented marketing channels, poor infrastructure, and policy distortions. Chand (2012) summarizes the appalling state of marketing infrastructure (including lack of auction platforms, drying spaces, and general amenities) revealing why producers continue to depend on commission agents and traders in primary markets (*mandis*). Shilpi and Umali-Deininger (2007) show in the case of Tamil Nadu that the likelihood of

farmer sales at the market increases significantly with an improvement in market facilities and a decrease in travel time to the market.

India requires multiple approaches to address the situation including through the Agricultural Produce Marketing Committee (APMC) mechanism, new business models, and the scaling-up of successful ventures such as cooperative milk marketing, along with organised retail. Most of the reforms needed in agricultural marketing are proposed in the Model Act which has yet to be fully implemented in order to pave the way for direct marketing and vertical coordination through contract farming, creating a competitive environment for services, and reducing the near monopoly of the APMCs (Chand, 2012).

Traditional wholesale and retail markets in Eastern and Southern Africa

In a four country study in sub-Saharan Africa, the traditional wholesale and retail market sector was found to be extremely under-served with physical infrastructure. Tschirley et al. (2013) report that the infrastructure deficit is especially acute at the wholesale level. All wholesale trading in Blantyre and Lusaka and over 60% in Nairobi occurs in uncovered dirt fields. Maputo is better, with all of its trading occurring in a single market under somewhat improved physical conditions. Maputo also stands out in having better trash collection and drainage in its wholesale market, while in Blantyre and Lusaka markets have no drainage of any kind and suffer large amounts of accumulated and rotting organic trash. Though infrastructure at retail is generally better than at wholesale, still 80% of traders in Maputo and Lusaka and nearly 50% in Blantyre operate in areas that lack either an improved floor or roofs that provide sufficient clearance for comfortable walking. 95% of traders in Nairobi operate under such conditions. Across the four countries, the share of retail traders operating in areas with neither a roof *nor* an improved floor ranges from about 25% in Nairobi to about 70% in Lusaka. Drainage is also poor, with nearly 70% of traders in Maputo and 80% in Nairobi operating in areas either with no installed drainage infrastructure or where the installed system does not work. Waste collection is sporadic.

However others such as the National Fresh Produce Market in Johannesburg are seeking new ways of doing business to continue to provide vital functional roles including the upgrading of facilities and services as well as offering wholesaling provision for smallholder producers enabling them to maintain a place in the food system (Romanik, 2008).

Further and traditionally, centralized wholesale food markets have been located in suburban locations, and close to major transport routes. As cities have grown further, these food markets have become part of the city (example in Manila, Hanoi, and Santiago), and are now located in more congested areas of the city, creating problems of access, congestion and conflicting land use. As cities modernize and expand further and develop multi-nodal sub-centres, new and decentralized wholesale food markets emerge (Steinberg, 2014). It is noted however that there are numerous examples of both public and private sector investments in modern wholesale markets on the outskirts of large cities that have failed often due to a lack of a real understanding of how the markets work and of key and relevant trends and change within the food industry sector - all of which impact on design, location and future economic viability.

2.4 Changes in primary food production

The changes in consumer demand and in the intermediate segments of food systems send powerful signals to all types of producers and induce response strategies. Important consequences of these changes include: the exclusion of the vast majority of small-scale farms from the more profitable and dynamic market sectors; farm consolidation; crop and farm intensification and or diversification (within and outside agriculture); an increased use of agri-inputs, mechanization and credit; and changes in location on production including regional specialization.

With 570 million farms worldwide, of which 500 million are considered family farms and 95% with less than 2ha (Lowder et al., 2014) where food is produced, by whom and how food reaches the consumer is central to the debate on the wider linkage between rural and urban areas in terms of the food system, consumer choice, and employment and livelihood. Masters et al., (2013) consider that urbanization and economic development have made global agriculture increasingly differentiated. Whilst many farming households sell only part of what they produce and are often net buyers of food, those farming households closer to markets and those in agriculturally dynamic zones and along transport routes even if located quite far from towns and cities, have become increasingly specialized and linked to agribusinesses. As dynamism spreads, even shrinking size farms can become increasingly commercialized with capital investment in specialized equipment mostly in higher value cash crops (for example horticulture) and livestock and livestock products (poultry, dairy, etc.) although also in staple product and commodity differentiation (for example higher quality and specialist rice and maize, etc.). The first responders have been in production regions with better production conditions and often with associated change in the midstream and downstream vertical market chain coordination and infrastructure investment. Examples include: from India where investment has stimulated production with the rapid expansion of potato production associated with intermediaries' investment in cold storage facilities in western Uttar Pradesh (to serve the Delhi market, where two-thirds of potato consumption is now from cold stores based in this production area) (Das Gupta et al., 2010) and in the more distant Bihar (Minten et al., 2014). Such infrastructure investment is associated with policy change (change in marketing laws) and positive tax incentives; refrigeration and primary processing of dairy products in Tanzania (Wenban-Smith, 2014); investment in mills for example in the rice sector in a number of Asian countries (Reardon et al., 2014); and where market proximity through good road access has enabled the development of the food sector (Rao et al., 2004 for case example India; and World Bank, 2007a, for Indonesia).

There is substantial evidence that investment in roads and road connectivity positively affect agricultural productivity and output for example in China and India (Fan and Hazell, 2001). In sub-Saharan Africa, Dorosh et al., (2010) find that agricultural production is highly correlated with proximity (as measured by travel time) to urban markets. Whilst differences were observed between West and East Africa on the adoption of high-productivity/ high-input technology, overall total crop production relative to potential production was found to be 45% for areas within four hours' travel time from a city of population 100,000, and falling to 5% for areas more than eight hours away.

A number of authors have reviewed the integration of agriculture within urban boundaries and in peri-urban areas to enhance urban food security and livelihood (Thebo et al., 2014; Smit et al., 2001), and on the role of agriculture in the urban income share (Zezza and Tasciotti, 2010). The massive numbers of farms reported (Thebo et al., 2014; Smit et al., 2001) raise questions on: the minimum scale of measurement used in international farm size assessments; the wider understanding of the role of very small size plot holdings (i.e. roof gardens, micro plots and home gardens and small livestock management in the case of landless households) in household livelihood and food security; and critically on the definitions used for urban and rural in this debate. On the latter question, food production may well be within the functional limits of the town or city and either within or outside of the urban administrative boundaries – yet both are often included in the definitions of urban agriculture. Further, many farmers live within the administrative boundaries of a town or city but their farm plots are outside the city limits complicating the analysis of data. Using data from six sub-Saharan Africa countries, Jayne et al., (2015) indicate that households whose primary residence is defined as urban control 10-30% of total national agricultural land and that this share has risen in recent years for most of the countries examined. However cross country and regional data analysis is constrained because urban, as officially defined, can include villages of 1,500 people in some countries as for example in some Latin America countries where 86% of the farmers are "urban" dwellers in Bolivia, 84% in Ecuador, 75% in Mexico, 22% in Chile. The recent 2014 census in Colombia found that out of 2.3 million people working in agriculture, only 760,000 lived in the legally defined rural areas, the rest are all "urbanites" although most of them however live in small towns of only a few thousand inhabitants (DANE, 2015). This issue may impact on the debate on "urban agriculture" due to the use of the old ways of looking at rural and at urban and by assuming that people work in the same place as their home particularly if they are rural or farming people.

Competition and resulting conflicts are increasingly seen between urban land uses and agriculture land on the urban and peri-urban perimeter as urban infrastructure seeks to expand. This process of change can be seen in not only in the shift of land use from agricultural to industrial, residential and infrastructural uses, but also in the use of and impacts on natural resources (deforestation, water depletion and pollution) (Allen, 2003, cited in Steinberg, 2014). Innovative models are being developed for example in the Western Province, Sri Lanka (Dubbeling, 2014) which integrates agriculture into planning for both food security and environmental gains in these diffuse rural and urban spaces. With the area expansion of secondary cities (Roberts and Hohmann, 2014) there is a call for the reform of land governance systems with a focus on the adoption of collaborative governance in these urban-rural spaces.

3. IMPLICATIONS OF CHANGE FOR THE FOOD SYSTEM AT THE RURAL-URBAN INTERFACE

The following section focusses on the implications and opportunities arising from the observed trends of food system change on the increasingly diffuse and porous interface of rural and urban societies and on the links between rural areas and towns and small and medium cities.

3.1 Food production and first stage procurement

To produce food to meet future demands in a world of increasing per capita consumption, changing consumer demand and urbanization, is and will continue to place new pressures on the farming community and on natural resource assets in particular land and water. Whilst the debate on global food supplies and meeting the needs of mega cities is beyond the scope of this paper – the place where 5.5 billion persons live in the diffuse and porous interface of rural and urban societies, has implications and opportunities both for consumers locally and for producers and other related food system actors supplying that 'local' market as well as contributing to wider national and global markets.

Agriculture –wherever located– that meets the requirements of new and modern food systems will increasing become intensive in services which are often located in towns and small and medium cities. Towns and small and medium cities are the places where producers including smallholders access a range of essential inputs and services needed to increase productivity and help to secure access to better markets whether through output market structures and their related services such as packaging material suppliers, product quality and plant and animal health inspection services, or input services including agro-dealers for agricultural machinery, equipment and tools, seeds and planting material, fertilizers, pesticides and insecticides, veterinary products and irrigation systems and related equipment; banks for financial intermediation provision; small machine shops for equipment repair; or extension services. For both input and output markets, proximity matters to strengthening linkages between urban areas and the farming community. All of these service providers create local employment opportunity. Building the capacity of small-scale input retailers in technical, product and business management skills enables them to become certified providers. This is the focus of a number of initiatives for example the work of the Alliance for a Green Revolution in Africa (AGRA) program in a number of African countries[11], where support to input providers is creating both urban employment and building better service provision for farming households.

However as the first point of connection between the producers and the market is set to change with the processes of *dis-intermediation,* the relationship between the producer and first stage market chain actor is reshaped, with potentially either positive or negative implications to employment and the local economy in towns and small and medium cities where traditionally services have first been provided. Whilst such "*dis-intermediation"* reduces the number of chain actors thus reducing employment and

[11] http://www.ifdc.org/about/ifdc_articles/agro-dealer_development_projects_increase_farmers/

income generating activity, it can also offer new economic and employment opportunities for producers when they are able to mobilize direct linkages with buying agents often enabled through the formation of farmer organizations or cooperatives or through new business models which provide the necessary bulking up of a consistent quality and quantity of product. New opportunities may also arise for traditional wholesalers/intermediaries where they are able to modernize and service modern chain actors; or where modern chain actors set up new and improved logistics, transport, product preparation infrastructures. Where the locations are attractive, in terms of a well-organized and efficient supply base and a conducive agribusiness environment, second stage food system chain actors can invest in infrastructure (packing houses, meat processing plants, mills and transport logistic infrastructures, etc.) which in turn create employment, and attract associated goods and services. These changes can create new employment opportunities which, where skills are available, can be taken up locally and potentially drive the local economy.

Modern logistics used by food retailers and processors can also reduce the advantage of geographic proximity with logistics' technologies and systems that allow for integration to take place nationally and globally i.e. through "*geographical repositioning"*. The winners will be more efficient and competitive producers of food whether from other places in the country or the region or the world. This can increase spatial polarization and reduce opportunities in regions with lower productivity levels and where there are weak incentives for agribusiness investment (inadequate infrastructure, services and land; nonconductive tax and regulatory environments, etc.). As supply chains seek to secure greater product availability including all year around supply i.e. "*de-seasonalisation*", retailers and their procurement agents' source from more distant locations which again can create new business opportunities for producers and associated local chain actors.

To secure and exploit production and market opportunity for local economic development and for employment generation essentially requires an understanding of the food system including the local production and the output and inputs services required in a given rural and urban space.

3.2 Fostering a diversity of food systems

There is a growing debate on issues of consumer choice, food access, and public health, and calls for new models of producer – consumer linkages including "short chains", a push back against "industrial foods" including modern retail and often global large-scale agribusinesses, and on food sovereignty. Such debates offer opportunity in this diffuse and porous interface of rural and urban societies and on the links between rural areas and towns and small and medium cities in particular in fostering shorter and local food supply chains. As such they also provide new opportunities for job creation and for employment generation.

"Short food supply chains" is a term used to describe a range of food systems that share three main characteristics:

- Low or no intermediation. These chains are "forms of agrifood movement with only one or no intermediary between production and consumption" (Nicholson et al., 2012: 21) and bringing producers and consumers closer together in terms of reconnecting the agricultural producer and consumer to aid food traceability and quality (including for organic produce) (Parker, 2005).
- Geographical proximity. Short chains imply short physical distances and a shared spatial base between production and consumption, that allows for a "direct relation between both extremes of the agrifood chain" (Nicholson et al., 2012: 24).
- Trust and strengthening of social capital. Short chains share information on the production process, the origin, the distinguishing characteristics related to quality and product traceability. Thus, short chains create greater trust between consumers and producers and the strengthening of social networks (Marsden et al., 2000; Renting et al., 2003; Ilbery and Maye, 2005). Some definitions include "extended" short food supply chains where consumers are aware of the identity of the producers such as fair trade, cultural practice and identity (Kneafsey et al., 2013).

In a review of urbanization, rural transformations and food security in China, a range of short chain approaches are identified including: increasing agricultural production in urban areas; community-supported agriculture; direct selling between producers and consumers, whether face-to-face or internet based; various third party guaranteed systems, including third party authentication systems; organic food shops; and periodic small-scale markets operated in car parks and urban residential compounds (Holdaway, 2015 citing Zhang, 2013). Holdaway (2015) notes however that many such initiatives are recent and no comprehensive data exist on their extent or efficacy in ensuring safe food supplies. Further, Holdaway notes that such approaches generally require investment of time and/or greater expense, making scaling up difficult. The likelihood of reaching more than a small percentage of the population seems potentially limited in this case.

In Latin America, short chains are being recognized as an important phenomenon, linked to local and cultural heritage, biodiversity, and to a lesser extent agro-ecology and social economy initiatives (ECLAC, 2014). Several Latin American governments (e.g. Bolivia, Chile, Colombia, Ecuador and Peru) have or are putting in place short chain public policies, often linked to smallholder or "family farming" development strategies and/or for the enhancement of regional agri-food heritages. Some examples of innovations relating to "short food supply chains" are given in Box 4.

Box 4. Linking smallholders with consumers

Farmer markets – India

A marketing model for producers to sell directly to consumers has been developed in some states in India known variously as Apna Mandi, Rythu, Shetkari, Krushak Bazaars and Uzhavar Sandhais (Dey, 2012). These markets enable farmers to sell their produce as retail to consumers in towns on certain days without intermediaries. Whilst the scale of operation of these arrangements is quite small and only farmers near big towns can benefit from them, such an innovative short chain model has been endorsed for promotion by the Planning Commission (Planning Commission, 2011; Chand, 2012).

Farmer Fairs - Costa Rica

The Peasant Women's Coordinating Committee (Coordinadora Mujeres Campesinas), a sub-committee of the National Peasant Platform (Mesa Nacional Campesina), together with the Union of Small Farmers (Unión de Pequeños Agricultores - UPANACIONAL) has played a key role in raising the profile of farmers' fairs (Ferias del agricultor) as a way for smallholder farmers in particular women to sell their products directly to consumers. Good practice tools for farmer fair management have been developed and shared and these weekend fairs are now part of the food system of many small towns in Costa Rica (Coq, 2013).

Gastronomy in Peru

Mistura is a food and gastronomy fair that takes place in Lima, with the aim of promoting awareness among consumers about the ecological and cultural diversity of food, and the role of smallholder communities in the maintenance of the country's food heritage. A recent Mistura in Lima (2014) brought together over 8,000 producers and 192 restaurants, as well as 420,000 visitors. Mistura is one expression of a broader awakening of culturally-distinct gastronomy that in the past 15 years has resulted in a 36% increase of traditional food markets, creating new opportunities for smallholders to reach urban consumers (Ranaboldo and Arosio, 2014).

Direct purchasing by government agencies (institutional markets)

Inspired by the experience of Brazil and other Latin American countries, a **program of public acquisition** of food was launched in 2012, as part of the World Food Program's P4P (Purchase for Progress) initiative. The project involves 2,700 farmers from poor rural communities in Ethiopia, Malawi, Mozambique, Nigeria and Senegal, with an initial investment of US$ 4.5 million funded by Brazil and the

UK Department for International Development (http://paa-africa.org/).

In order that **Brazilian students receive healthier foods** in schools and as early as 1999, the National Food Policy (Política Nacional de Alimentação - PNAN) stipulated that schools that received grant assistance were required to adhere to the program's mandate that 70% of all funds be used to purchase fresh fruits and vegetables from local farmers. Local schools were also encouraged to work closely with community based organizations. In 2009, the Programa Dinheiro Direto na Escola (Program for Direct Money to Schools) provides monetary transfers from the Fundo Nacional de Desenvolvimento da Educação (National Development Fund for Education) on condition that 30% of the fund transfers purchase foods from local farmers and family business. The Programa Saúde nas Escolas also provides funding for schools to partner with farmers, as well as helping the latter with financial and technical assistance in producing food (Reis et al., 2011 cited in Gómez, 2015).

The Food Assembly initiative in Europe

The Food Assembly is a social enterprise and web based platform connecting local producers directly with local consumers. Launched in France in 2011, there are now over 700 assemblies in France, Belgium, the UK, Germany, Spain and Italy. The organization operates a franchise model by recruiting people as local organizers who are responsible for sourcing producers, building a membership, and coordinating the weekly 'market' under the Food Assembly umbrella. Food must be produced within a 150 mile radius of the assembly point and producers set their sale price.
https://thefoodassembly.com/en

Source: Berdegué et al., 2014

New and innovative approaches on short food supply chains are now being explored at the level of large cities and their hinterlands i.e. ***city-region food systems***. Some principles developed in such programs (Box 5) may also be relevant and transferable to medium size and intermediate cities and their rural hinterlands.

Box 5. City-region food systems on the policy agenda of large metropolitan regions

Mayors, city planners and local and regional administrations are now recognizing the social, economic and environmental opportunities offered through the strengthening of city-region or urban food systems. These include:

- Localized production i.e. urban and peri-urban agriculture for food and income security at household level, to reduce market distortions and reduce dependency on 'imported' supplies
- Creation of new enterprise and market opportunities
- Entry point for awareness raising on healthy foods and lifestyles
- Resource recovery (urban waste including grey water) and climate change adaptation such as designating low lying areas and flood plains for agriculture to limit construction and reduce the impact of floods, or reduce emissions related to food transport and food waste thus lowering the urban footprint.

Examples of multiple entry points for city food strategies are summarized in Dubbeling (2013) and include: promoting and integrating urban agriculture into city planning; preferential local food procurement for the public sector; promoting safe reuse of urban waste and wastewater in urban and peri-urban agriculture; supporting food projects for the urban poor/disadvantaged, farmer markets and local food hubs, short market chains, and local small enterprises in food processing and distribution; forming Food Policy Councils or Platforms; and reducing food waste including linking to food banks.

Such approaches are most commonly reported in large cities in the developed world such as New York, FoodWorks (Quinn, 2010) and the work of the Fair Food Network (http://www.fairfoodnetwork.org/) in Michigan and Detroit. There is growing interest in cities in

developing cities such as Belo Horizonte, Brazil, and Amman, Jordan (Dubbeling, 2013) in these approaches.

Source: Berdegué et al., 2014

3.3 Agrifood investment in towns and intermediate cities

Food manufacturing - agro-processing - is more decentralized that other manufacturing sectors, and that means towns and small and medium cities play a central role with impacts on the local economy and on rural and urban labor markets. Of the industrial sectors, food manufacture is a key sub-sector that has potential for reducing poverty, especially in rural areas because it is less spatially concentrated than other sectors and is able to generate backward and forward linkages with non-farm sector of services, manufacturing and construction in both the informal and formal sectors (Cazzufi et al., 2014). Processing plants are often located in secondary towns, providing a much-needed boost to local economies for example: Miryalaguda in Andhra Pradesh, India, as a rice milling town (105,000 population in 2011); and Bothaville in the Free State, South Africa, with large maize granaries (46,030 population in 2011), (Atkinson, 2014). In a study of formal medium and larger scale food manufacturing in Chile and Mexico, Cazzuffi et al., (2014) found that geographically, food manufacturing locates in relatively poor areas, but not in the poorest, and in municipalities with more availability of labor and raw materials and with better infrastructure; thus contributing to local poverty reduction. There are no studies on food manufacture which explore both the determinants of location of processing firms of all scales and levels of formality, and the associated local impacts on the farming community, local labor markets, and poverty levels.

Some observations can be gleaned from the larger scale agricultural export sector which shows that clustering in the agricultural sector presents many benefits, such as creating an enabling environment for inter-firm cooperation, facilitating the diffusion of innovations, and acting as a means to channel efficiently public support to increase competitiveness in the agricultural sector. Farmers and small-scale firms can benefit from participating through joint-action advantages and agglomeration economies (Gálvez-Nogales, 2010). However much local agribusiness is usually dominated by smaller-scale firms, organized in a more informal manner, with weaker linkages among actors, low productivity, skill shortages and that face more difficulties in achieving a critical mass of firms. For example in India the food processing industry is highly fragmented and is dominated by the unorganized and small-scale enterprises (KPMG, 2009). Whilst the unorganized segment varies across categories, approximately 75% of the market is still in this segment (KPMG, 2009; Rais et al., 2013).

The food manufacture sector is exposed to many of the same constraints as other industrial sectors when operating in small towns as shown in a review of bakeries located in small towns in South Africa (Louw et al., 2010) where bakeries were constrained by unreliable services (electricity), hampered by poor access to and retention of suitably skilled and trained work force, and exposed to competition from large food corporations' distribution of bakery products through both modern retail and traditional small retail stores and outlets.

There are examples of where governments are seeking to support the food processing sector and agricultural business centres. The government of India faced with an under-developed food manufacturing sector sees the expansion of the sector as one way of bringing industry to rural areas (Dev et al., 2004). In response the government launched (October 2014) an initiative to encourage agribusiness development in order to link producers with agro-industry and modern infrastructure through joint public-private partnerships. The proposed food parks will be located in small and medium urban centres and along urban corridors[12], and offer a range of infrastructure[13] services to the food

[12] Source: http://news.oneindia.in Posted by: Reetu Sharma Updated: Wednesday, September 24, 2014, 16:38 [IST]

[13] Each facility will consist of 30-35 food processing units and will aim to facilitate the establishment of a food processing industries backed by supply chain infrastructure including collection centres, central processing center and cold chain infrastructure.

processing sector. In Indonesia, the Medium Term Development Plan for 2015-2019 intends to build upon the earlier experiences (2003-11) of Agropolitans and continue investment in centres in productive or potentially productive rural areas and agriculture-based small towns (Mulyana, 2014). In South Africa, 2015 saw the launch of a major investment program which seeks to kick start rural economic transformation through the establishment of Agri-Parks in all District Municipalities[14]. The Agri-Park plan comprises three interrelated components: Farmer Production Support Units - a rural smallholder farmer outreach and capacity building unit that link farmers with markets; Agri-hubs - a production, equipment hire, processing, packaging, logistics, innovation and training unit; and finally, Rural Urban Market Centres – a contracting structure to link producers with rural, urban and international markets. Ultimately the program seeks to enable producer ownership of the majority of Agri-Parks equity (70%), with the state and commercial interests holding minority shares (30%).

With the strengthening of these intermediate food system activities, many towns and small and medium cities dependent on farming activity in the surrounding rural areas as a key economic driver have the potential to gain in terms of employment and job creation. Proximity of inward investment in the sector matters to strengthening linkages between rural and urban areas. We would hypothesize that in countries with high levels of urban concentration in one or a very small number of cities makes smallholder market access more difficult. On the contrary, in countries with more towns and small and medium cities, smallholders should be better able to access market opportunities and the food sector including food manufacture, better able to take forward first stage food marketing and preparation.

4. ADJUSTING POLICIES THAT FIT AND SERVE THE NEEDS OF PEOPLE AT THE RURAL-URBAN INTERFACE

Given the major changes taking place in the food system from production to consumption and the implications to the millions of people in diffuse and porous rural and urban places, real opportunities exist to explore the national and local policies which influence the structure of the food system. Public and private sector adjustments should be structured to mitigate the negative risks as well as foster and create new opportunities to the benefit of the populations in these places as both economic players and as consumers.

Some interventions relevant to the food system at this rural–urban interface aimed to secure better social and economic local outcomes and distributional gains are given below.

4.1 Recognize the rural-urban interface and the importance of towns and intermediate cities

Deconstructing the rural-urban dichotomy is a necessary first step if any progress is to be made analytically or policy-wise for building strong and equitable food systems (Berdegué et al., 2014). The livelihoods of the majority of rural households, including smallholder farmers, are hardly only rural; “rural” defines the main place of residence, but no longer encompasses the spatial scope of livelihoods. The same is true of a large number of “urban” households, whose livelihoods are intimately dependent on the rural parts of the wider places where they also conduct their life. “Rural” and “urban” defined in the traditional way, are conceptual lenses that distort our view of the reality of social processes and can only lead to sub-optimal policies and investments.

There can be no questions of promoting better market access for smallholder agricultural producers or accessing better quality and lower price food for the majority of the world’s populations, in the absence of stronger place-based rural-urban linkages for the food system. Traditional markets at the level of towns and small and medium cities continue to be the entry points to the food system for the vast majority of the world’s 500 million smallholders, because the proportion of smallholders that gain entry to the more dynamic segments of the food markets remains relatively small. Nevertheless, the deep and rapid changes taking place in the food system from production to consumption hold strong implications

[14] http://www.ruraldevelopment.gov.za/agri-parks

for local economies and employment, both urban and rural consumers, the farming community, and traditional market chain actors.

It is encouraging to note there is a growing recognition by policy makers at all levels on the importance of seeking to improve the connectivity between rural and the urban places in order to foster reciprocal flows of goods, and social, economic and environmental services, for economic development, the reduction of regional inequalities, effective rural and territorial transformation, and sustainable urbanization (Berdegué et al., 2014; UNHABITAT, 2015). This recognition includes support of urban-based public goods that service the rural population of producers and entrepreneurs, rural-based public goods that service the economic activities in the rural areas starting with maintaining and enhancing support to agriculture and rural-urban connectivity. Strengthening rural-urban connectivity of infrastructure (including roads, electrification and telecommunications), the provision of basic public services (including fresh water and sewage, electricity, waste disposal, public safety) in particular for towns and small and medium size cities and their rural hinterland/territory, and of economic services (including high quality, transparent, and efficient wholesale markets in key sub-regional and regional cities; a new type of agricultural and food extension service: good quality farm and agribusiness integrated advisory service bureaus; financial services) in every small and medium town of a certain size is central to building vibrant local economies of which the food economy is often one central player.

Specific policy opportunities policy exist at the national level to bring together and make coherent the overarching and relevant thematic strategies of rural and urban development as well as sectoral strategies and policies directly and indirectly relevant to the food system. These include agriculture, food, industry, public health, labour and employment, and education and skills development through technical and vocational training. Land reform policy including land access and security and conflict mitigation and resolution at the rural–urban intersection, is critical to the local debate on the food system and in the context of evolving land use change. Further, national public policy can play a central role in innovation and bringing together social programs with those which address rural and urban household economic development and public health issues. These offer opportunities in food system diversification nationally and at the local level for example school feeding programs, maternal health and nutrition, and through innovation in food access for the poorest.

Support in building the capacity of national and local governments and municipalities is central to prioritize and improve the design and implementation of policies and investments. Only then can opportunities be optimized through the development of the food system in these diffuse and interlinked rural-urban functional territories.

4.2 Improve the investment environment in towns and intermediate cities

Ranging from the small-scale producer to multinational agribusiness corporations, the private sector stakeholders are the central players in the food system. The investment choices they make are directly influenced by public policy and investment. It is fundamental to attract investment in agriculture, in the intermediate segments of the food system, and in agricultural sector inputs and services, as well as in associated manufacturing and services indirectly linked to the food system to foster local economic development and to secure better social and economic local outcomes and distributional gains through the food system.

At the national level, governments can play a key role to support policies that avoid metropolitan bias to reduce the gaps in public goods provision in rural areas and towns and small and medium cities and to adapt policies and public incentives (targeted subsidies) which enable medium and large firms to locate into regions of the country where social benefits (to the local economy and employment) can be derived. These should promote reducing and dismantling of transfer mechanisms and schemes which are spatially and socially regressive for example that generally favor medium and large firms located in more favorable regions of the country. Tax breaks and regulatory structures, for example, can create incremental incentives for: agribusiness to diversify the spread of business investment (processing, cold storage, logistics, inputs, etc.) into towns and small and medium size cities; investment in agribusiness modernization, innovation and in research and development in the food sector with implications to

competiveness locally and nationally. Secondary and tertiary technical and vocational training in agriculture, food processing, business skills, quality assurance, is critical to build a labor market (formal and informal) for the sector. Making such training and education available at a decentralized level helps to ensure that the necessary skills are available in order that people in rural areas and in small and medium size cities can take up emerging employment opportunities.

Critically at subnational level, there is a need to develop innovative models of association between local governments (urban and rural municipalities making up a functional territory) to face the wider governance challenge of strengthening rural-urban linkages and to build the capacity to develop the local food system in the interests of building up the local economy, servicing the local needs of the food system for income generation and to meet the consumption needs of local people. A sound local structure can also underpin the links of the local food system with wider national and global markets where opportunities arise.

The skills and knowledge of municipal and local governments and urban planners may benefit from being strengthened to help build coherent planning between rural and urban jurisdictions in order to maximize the food systems' contribution to local economic development and job creation. Specific topics that may require attention include: zoning for wholesale and retail markets, modern retail, industrial parks including for the food sector; local land use planning; urban-rural public transportation; services of the local government that have a direct impact on agri-food private sector investment and economic activities (including informal and household-based enterprises) for example licensing and fees, wholesale market management and supervision, modernization of traditional food retail and retail market management; removal of barriers that limit the diversification of the food system often in favor of modern retail whilst maintaining the basic principles of public health; and support to local food safety regulation including the provision of necessary training and capacity building of key actors for example street traders and food processors.

Private and public sectors engaged in the food system sector and food related policy must come together at the national level and critically at the sub-national level (functional territory) to ensure a shared understanding the changes taking place, to address gaps in services, and to address choices and trade-offs between food system options and their associated opportunities.

4.3 Foster retail diversity including the potential of short chains

There exists a need to remove barriers to inclusion (from smallholders to informal and formal small and medium scale enterprises including those engaged in traditional retail and food preparation) as well as to build new opportunities for income generation in the food system. Ensuring that food is available of an acceptable quality and nutritional diversity and accessible in terms of price and location for purchase remains central to public policy and societal well-being.

Innovative models of alternative food systems and diversified retail options offer such potential benefits to both smallholders and urban consumers (access, availability and nutrition) including differentiated groups of urban households, for example, the poor, slum dwellers, migrant workers and commuters, middle class consumers, etc., These may include for example: short chain models; public procurement policy and practice; food and gastronomy fairs; city-region food systems; smallholder and small and medium enterprise inclusion in modern food systems; and linking traditional and modern food systems at different stages along the chain including input services. Such models (some already adopted in parts of the world) would benefit from full documentation including evaluation for their social and economic impacts, sharing, and further development.

4.4 Generating evidence to inform practice

There remain significant gaps in knowledge on the transformation of the food system in countries at different stages of food system change specifically on the spatial differentiation and impacts and implications of such change for socially-inclusive growth, employment and food access and availability.

Future studies in this area should also include the interaction between patterns of urbanization and food system transformation. Studies should address the determinants of location of investment of agrifood processing firms of all scales and levels of formality, and the associated impacts on the local farming community, labor markets, and poverty levels. There is a need to understand social institutions and other factors that prevent certain groups (women, youth, indigenous and ethnic minority groups, castes, poorest smallholders and rural households) in rural and urban societies from gaining equal access to opportunities created in the sector. Few studies have been conducted on the health impacts of changing food supply systems and consumption patterns of different (socio-economic categories) consumers in rural towns and cities of different scales including how and where people access food. Filling this gap is critical to contributing to tackling chronic health conditions and has the opportunity to open the debate on the impact and options for alternative food systems. Outputs from such studies can help to inform national and subnational public policy and intervention.

Dynamic change is taking place within the food system in all developing countries with implications which impact strongly on rural and small town and city livelihoods, local economies and well-being including employment and job creation, food access and human nutrition and health. Such change has the potential to have effects which may or may not be desirable and which once in place may be difficult to reverse. Systems to monitor food system change at local and national levels and to take necessary corrective actions need to be put in place. This requires cross sectoral coordination and coordination at both territorial and national levels, with the former cutting across this increasingly diffuse and porous interface of rural and urban societies.

REFERENCES

Annamalai, K. and S. Rao (2003) e-Choupal. The University of Michigan Business School

Atkinson, D. (2014) Rural-Urban Linkages: South Africa Case Study. Working paper prepared for Rimisp as a contribution to a Desktop Review on Inclusive Rural–Urban Linkages commissioned by The Ford Foundation http://rimisp.org/wp-content/files_mf/1422297966R_ULinkages_SouthAfrica_countrycasestudy_Final_edited.pdf (accessed April 17, 2016)

Bell, D. and M. Jayne (2009) Small Cities? Towards a research agenda. International Journal of Urban and Regional Research. 33 (3) 683–699

Berdegué, J. A., Balsevich, F., Flores, L. and T. Reardon (2004) Central American supermarkets' private standards of quality and safety in procurement of fresh fruits and vegetables. Food Policy, Volume 30, Issue 3, June 2005, Pages 254–269

Berdegué, J. A. and Proctor F. J. with Cazzuffi C., (2014) Inclusive Rural–Urban Linkages. Working Paper Series N° 123. Working Group: Development with Territorial Cohesion. Territorial Cohesion for Development Program. Rimisp, Santiago, Chile. Desk review prepared for the Ford Foundation. http://rimisp.org/wp-content/files_mf/1422296516InclusiveRural_UrbanLinkages_edited.pdf (accessed April 17, 2016)

Biénabe, E., Berdegué, J. A., Peppelenbos, L. and J. Belt (Eds) (2011) Reconnecting markets Innovative global practices in connecting small-scale producers with dynamic food markets. Published: Gower Publishing

Birthal, P. S., Joshi, P. K. and A. Gulati (2005) Vertical coordination in high value food commodities: implications for smallholders. MTID discussion paper 85. IFPRI

Cazzuffi, C., Pereira-López M. and I. Soloaga (2014) Local poverty reduction in Chile and Mexico: The role of food manufacturing growth. Proyecto Cohesión Territorial e Inversión Privada Agroindustrial. www.rimisp.org

Chand, R. (2012) Development policies and agricultural markets. Economic and Political Weekly Review of Rural Affairs December 29, vol xlvii no 52, 53-63

Coq, J. F. (2013) CMC Costa Rica: Women take-up role in national advocacy platform. Chapter in Ton, G. and F. J. Proctor (editors) (2013) Empowering smallholder farmers in markets. Experiences with farmer-led research for advocacy. Wageningen: CTA-AGRINATURA-LEI. pp140. ISBN 978-94-6173-891-2

Crush, J. (2012) Migration, development and urban food security. Urban Food Security Series No. 9. Queen's University and AFSUN: Kingston and Cape Town

Crush, J. and M. Caesar (2014) City without choice: Urban food insecurity in Msunduzi, South Africa. Urban Forum, 25, 165–175 DOI 10.1007/s12132-014-9218-4

Crush, J. and B. Frayne (2011) Supermarket expansion and the informal food economy in Southern Africa Countries: implications for food security. Journal of Southern African Studies 37(4) 781-807

Das Gupta, S., Reardon, T., Minten, B. and S. Singh (2010): The transforming potato value chain in India: potato pathways from a commercialized-agriculture zone (Agra) to Delhi, IFPRI-ADB, mimeo

Delgado, C. L., Narrod, C. A., Tiongco, M. M. with others (2008) Determinants and implications of the growing scale of livestock farms in four fast-growing developing countries. Research Report 157. IFPRI

Departamento Administrativo Nacional de Estadísticas (DANE) (2015) Censo Nacional Agropecuario 2014. Bogotá, Colombia

Dev, M. S., Ravi, C., Vishwanathan, B., Gulati, A. and S. Ramachandran (2004) Economic liberalisation, targeted programmes and household food security: A case study of India. IFPRI MTID Discussion Paper 68

Dey, S. (2012) Key drivers for farmers and consumers of Rythu Bazaars – a study of the farmers markets in Andhra Pradesh. Asian Journal of Research in Business Economics and Management Vol. II Issue-VI June, p48-57. ISSN 2250-1673

Dorosh, P., Wang, H.G., You, L. and E. Schmidt (2010) Crop production and road connectivity in sub-Saharan Africa. A spatial analysis. Policy Research Working Paper 5385. The World Bank. Africa Region Sustainable Development Division

Dubbeling, M. (2013) Cityfood: linking cities on urban agriculture and urban food systems. ICLEI and the RUAF Foundation http://resilient-cities.iclei.org/fileadmin/sites/resilient cities/files/Full_papers/RUFS_2013_CITYFOOD_12pages_FINAL_ q.pdf

Dubbeling, M. (2014) Integrating urban agriculture and forestry into climate change action plans: Lessons from Sri Lanka. Climate and Development Knowledge Network (CDKN). Inside stories on climate compatible development

ECLAC (2014) Efficiency – a key ingredient towards sustainable supply chains. Position Paper on Efficient and Sustainable Supply Chains presented to International Transport Forum's Annual Summit of Ministers in Leipzig on 21 May 2014. Available at: http://www.internationaltransportforum.org/2014/pdf/FL-ECLACSustainableSupplyChains.pdf (Accessed Oct 20, 2014)

Fan, S. and P. Hazell (2001) Returns to Public Investments in the Less-Favored Areas of India and China. American Journal of Agricultural Economics 83 (5) 1217–22

FAO (2009) Global agriculture towards 2050. How to feed the world 2050. High Level Expert Forum 12-13 October 2009. FAO Rome http://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Global_Agriculture.pdf

FAO (2012) Global Trends and Future Challenges for the Work of the Organization. Annex 2 presented to FAO Committee on Agriculture Twenty-third Session Rome, 21 - 25 May 2012 COAG/2012/2 http://www.fao.org/docrep/meeting/025/gt_webannex_rc2012.pdf

Ferré, C., Ferreira, F. H. G. and P. Lanjouw (2012) Is there a metropolitan bias? The Relation-ship between poverty and city size in a selec¬tion of developing countries. World Bank Economic Review 26 (5508) 1–32

Frayne, B., Crush, J. and M. McLachlan (2014) Urbanization, nutrition and development in Southern African cities Food Sec. (2014) 6:101–112 DOI 10.1007/s12571-013-0325-1

Gálvez-Nogales, E. (2010) Agro-based clusters in developing countries: staying competitive in a globalized economy. Agricultural Management, Marketing and Finance Occasional Paper 25. FAO Rome

Gómez, E. J. (2015) Understanding the United States and Brazil's response to obesity: institutional conversion, policy reform, and the lessons learned. Globalization and Health 11:24. DOI 10.1186/s12992-015-0107-y

Gómez, M. I. and K. D. Ricketts (2013) Food value chain transformations in developing countries: selected hypotheses on nutritional implications. ESA Working Paper No. 13-05. Agricultural Development Economics Division, Food and Agriculture Organization of the United Nations

Gulati, A., Minot, N., Delgado, C. and S. Bora (2007) Growth in high-value agriculture in Asia and the emergence of vertical links with farmers. Chapter in Swinnen, J. (Ed.) (2007) Global supply chains, standards, and the poor. London: CABI Press.

Hawkes, C. (2006) Uneven dietary development: linking the policies and processes of globalization with the nutrition transition, obesity and diet-related chronic diseases Globalization and Health 2006, 2:4 doi:10.1186/1744-8603-2-4

Henson, S. and T. Reardon (2005) Private agri-food standards: Implications for food policy and the agri-food system. Food Policy 30(3), 241-253

Holdaway, J. (2015) Urbanisation, rural transformations and food security: the view from China. IIED Working Paper. IIED, London. http://pubs.iied.org/10753IIED

Ilbery, B. and D. Maye (2005) Retailing local food in the Scottish–English borders: A supply chain perspective. School of Science and the Environment. Department of Geography. Coventry University. Available at: http://www.sciencedirect.com/science/article/pii/S0016718505000953 (Consulted 10 October 2014)

IFAD (2010) Rural poverty report 2011. New realities, new challenges: new opportunities for tomorrow's generation 322pp. IFAD. ISBN 978-92-9072-200-7

ILO (2011) Global employment trends 2011: The challenge of a jobs recovery. International Labour Office. Geneva. (Accessed May14, 2016 http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_150440.pdf)

Jayne, T.S., Chamberlin, J., Traub, L., Sitko, N., Muyanga, M., Yeboah, F.K., Nkonde, C., Anseeuw, W., Chapoto, A. and R. Kachule (2015) Africa's changing farmland ownership: The rise of the emergent investor farmer. Plenary paper presented at the 29th Triennial International Conference of Agricultural Economists, August 13, 2015, Milan, Italy

Joshi, P. K., Gulati, A. and R. W. Cummings (2007) Overview. Chapter in Joshi, P. K., Gulati, A. and R. W. Cummings (Eds) (2007) Agricultural Diversification and Smallholders in South Asia. Published Academic Foundation India

KPMG (2009) Consumer markets - Food processing and Agri business. Briefing paper presented at the "International Summit on Food Processing and Agribusiness" organized by the Associated Chambers of Commerce and Industry of India (ASSOCHAM), India. https://www.kpmg.de/docs/Food_Processing_and_Agribusiness.pdf (accessed April 11, 2016)

Keats, S. and S. Wiggins (2014) Future diets. Implications for agriculture and food prices ODI report. 117 pp. http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8776.pdf

Kneafsey, M., Venn, L., Schmutz, U., Balázs, B., Trenchard, L., Eyden-Wood, T., Bos, E., Sutton, G., and M. Blackett (2013) Short food supply chains and local food systems in the EU. A state of play of their socio-economic characteristics. European Commission Joint Research Centre Institute for Prospective Technological Studies

Lançon, F., Drabo, I. and M-H. Dabat (2009) Appui à la définition de stratégies de développement des filières agro-sylvo-pastorales et halieutiques sélectionnées dans les régions d'intervention du PADAB II, Rapport final filière Niébé, CIRAD, June 2009.Unpublished

Liu, J., Shively, G. E. and J. K. Binkley (2014) Access to variety contributes to dietary diversity in China. Food Policy 49, 323–331

Louw, A., Geyser, M. and G. Troskie (2010) Determining the factors that limit agro-processing in the wheat milling and baking industries in rural areas of South Africa. Report prepared by Department of Agricultural Economics, Extension, and Rural Development, University of Pretoria for The National Agricultural Marketing Council, RSA

Lowder, S. K., Skoet, J. and S. Singh (2014) What do we really know about the number and distribution of farms and family farms worldwide? Background paper for The State of Food and Agriculture 2014. ESA Working Paper No. 14-02. Rome, FAO.

Marsden, T., Banks, J., and G. Bristow (2000) Food supply chains approaches: Exploring their role in rural development. Sociologia Ruralis, Vol. 40, N. 4. European Society for Rural Sociology

Masters, W. A., Djurfeldt, A. A., De Haan, C., Hazell, P., Jayne, T., Jirström M. and T. Reardon (2013) Urbanization and farm size in Asia and Africa: Implications for food security and agricultural research. Global Food Security 2, 156–165

Minot, N., Stringer, R., Umberger, W. J. and Wahida (2013) Urban shopping patterns in Indonesia and their implications for small farmers. High Value Agriculture Working Paper 4. Washington, D.C. and International Food Policy Research Institute (IFPRI) http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127967

Minten, B., Reardon T., Singh, K. M. and R. Sutradhar (2014) The new and changing roles of cold storages in the potato supply chain in Bihar. Forthcoming 2014 (accepted October), Economic and Political Weekly

Morisset, M. and P. Kumar (2011) Trends and patterns of consumption of value added foods in India. 7th Annual Conference on Economic Growth and Development December 15-17, 2011 Indian Statistical Institute, New Delhi 110016

Moyo, J. (2015) Urban farming mushrooms in Africa amid food deficits. Inter Press Service. 1pp. http://www.ipsnews.net/2015/09/urban-farming-mushrooms-in-africa-amid-food-deficits/ (accessed April 10, 2016)

Mulyana, W. (2014) Rural-Urban Linkages: Indonesia Case Study. Working paper prepared for Rimisp as a contribution to a Desktop Review on Inclusive Rural–Urban Linkages commissioned by The Ford Foundation http://rimisp.org/wp-content/files_mf/1422298454R_ULinkages_Indonesia_countrycase_Final_edited.pdf (accessed April 17, 2016)

Nicholson, P., Aguado, J., Navarro, E., Hobbelink, H., Groome, E., Verdugo, B., Rivera, M.G., Sanz, I., Fernández, F., Vicente, C. and E. Torremocha (2012) Amasando la Realidad. Revista Soberanía Alimentaria Biodiversidad y Culturas. Editorial SABC, no. 8. Available at: http://www.plataformarural.org/pdf/revista/N_8.pdf (accessed October 12, 2014)

Parker, G. (2005) Sustainable food? Teikei, co-operatives and food citizenship in Japan and the UK. Working Papers in Real Estate and Planning 11/05. Centre of Planning Studies, Department of Real Estate and Planning. The University of Reading, UK

Parwez, S. (2014) Food supply chain management in Indian agriculture issues opportunities and further research. African Journal of Business Management. 8 (14) 572-581

Pfitzer, M. and R. Krishnaswamy (2007) The role of the food and beverage sector in expanding economic opportunity. Corporate Social Responsibility Initiative Report No. 20. Cambridge, MA. Kennedy School of Government, Harvard University

Planning Commission (2011) Report of the Working Group on Agricultural Marketing Infrastructure, Secondary Agriculture and Policy Required for Internal and External Trade for the XII Five-Year Plan 2012-17, Agriculture Division, Planning Commission, New Delhi, India

Popkin, B.M., and S. W. Ng (2006) The Nutrition Transition in High and Low-Income Countries: What are the Policy Lessons? Invited paper prepared for presentation at the International Association of Agricultural Economists Conference, Gold Coast, Australia, 12-18 August, 2006. http://ageconsearch.umn.edu/bitstream/25493/1/ip06po01.pdf

Quinn, C. C. (2010) FoodWorks. A vision to improve NYC's food systems. The New York City Council. 86pp http://council.nyc.gov/downloads/pdf/foodworks_fullreport_11_22_10.pdf

Raimundo, I., Crush J. and W. Pendleton (2014) The State of food insecurity in Maputo, Mozambique Urban Food Security Series. No. 20 Published by the African Food Security Urban Network (AFSUN) South Africa.

Rais, M., Acharya, S. and N. Sharma (2013) Food processing industry in India: S and T capability, skills and employment opportunities. J Food Process Technol 4: 260. doi:10.4172/2157-7110.1000260

Ranaboldo, C. and M. Arosio (2014) Vínculos urbano-rurales: Circuitos cortos de comercialización e iniciativas empresariales que valorizan los sistemas alimentarios locales. Working paper prepared for Rimisp as a contribution to a Desktop Review on Inclusive Rural–Urban Linkages commissioned by The Ford Foundation http://rimisp.org/wp-content/files_mf/1422300274RULinkages_Shortfoodchains_Final_inSpanish_edited.pdf (accessed April 17, 2016)

Rao, P. P., Birthal, P. S., Joshi, P. K. and D. Kar (2004) Agricultural diversification in India and the role of urbanization. Markets, Trade and Institutions Division. Discussion Paper 77. IFPRI Washington DC

Reardon, T. and J. A. Berdegué (2006) The retail-led transformation of agrifood systems and its implications for development policies. November, 2006. Document is part of a series of

contributions by Rimisp-Latin American Center for Rural Development (www.rimisp.org/wdr2008) to the preparation of the World Development Report 2008 Agriculture for Development

Reardon, T. and J. A. Berdegué (2002) The Rapid Rise of Supermarkets in Latin America: Challenges and Opportunities for Development. Development Policy Review, 20 (4): 317-34

Reardon, T. and B. Minten (2011) The quiet revolution in India's food supply chains. IFPRI Discussion Paper 01115. IFPRI New Delhi Office

Reardon, T. and C. P. Timmer (2014) Five inter-linked transformations in the Asian agrifood economy: Food security implications. Global Food Security

Reardon, T., Barrett, C., Berdegué, J. A. and J. F. M. Swinnen (2009) Agrifood industry transformation and small farmers in developing countries. World Development, 37(11) 1717-1727

Reardon, T., Chen, K. Z., Minten, B., Adriano, L., Dao, T.A., Wang, J. and S. Das Gupta (2014) The quiet revolution in Asia's rice value chains. Annuals of the New York Academy of Science. 1–13 C. New York Academy of Sciences. doi: 10.1111/nyas.12391

Reardon, T., Minten, B., Chen, K. and L. Adriano (2012a) The quiet revolution in staple food value chains: Enter the Dragon, the Elephant, and the Tiger. IFPRI/ADB, Manila: Asian Development Bank

Reardon, T., Timmer C. P. and B. Minten (2012b) Supermarket revolution in Asia and emerging development strategies to include small farmers. Proceedings of the National Academy of Sciences (PNAS), 109(31), July 31: 12332-12337

Reardon, T., Tschirley, D., Minten, B., Haggblade, S., Timmer, C. P. and S. Liverpool-Tasie (2013) The emerging "quiet revolution" in African agrifood systems. Brief for "Harnessing innovation for African agriculture and food systems: Meeting challenges and designing for the 21st Century"; Nov. 25/26 2013, African Union Conf. Center, Addis Ababa, Ethiopia

Reis, C., Vasconcelos, I. and J. Barros (2011) Políticas públicas de nutrição para o controle da obesidade infantile. Rev Paul Pediatr. 29: 625–33

Renting, H., Marsden, T. and J. Banks (2003) Understanding alternative food networks: exploring the role of short food supply chains in rural development. Environment and Planning A. 35 (3) 393-411

Rischke, R., Kimenju, S. C., Klasen, S. and M. Qaim (2015) Supermarkets and food consumption patterns: The case of small towns in Kenya. Food Policy 52 (2015) 9–21

Roberts, B. H. (2014) Managing systems of secondary cities. Policy responses in international development. Cities Alliance/UNOPS, Brussels

Roberts, B. H. and R. P. Hohmann (2014) Secondary Cities: Managing Urban Land Governance Systems. World Bank Conference on Land and Poverty 2014: Integrating Land Governance into the Post 2015 Agenda: Harnessing Synergies for Implementation and Monitoring Impact Session URB-06 Uses of spatial data in urban management. March 25, 2014 https://www.conftool.com/landandpoverty2014/sessions.php

Romanik, C. T. (2008) An urban-rural focus on food markets in Africa. The Urban Institute 45pp http://www.urban.org/uploadedPDF/411604_africa_food_market.pdf

Sharma, V. P., Jain, D. and S. De (2012) Managing agricultural commercialisation for inclusive growth in South Asia. Policy Research Paper 6. Global Development Network

Shilpi, F. and D. Umali-Deininger (2007) Where to sell? Market facilities and agricultural marketing. Policy Research Working Paper 4455 Development Research Group. World Bank

Smit, J., Nasr, J. and A. Ratta (2001) Urban agriculture: Food jobs and sustainable cities. Chapter 2 in Urban Agriculture Food, Jobs and Sustainable Cities 2001 Edition UNDP

Steinberg, F. (2014) Rural–Urban Linkages: an urban perspective. Working paper prepared for Rimisp as a contribution to a Desktop Review on Inclusive Rural–Urban Linkages commissioned by The Ford Foundation http://rimisp.org/wp-content/files_mf/1422298948R_ULinkages_Urbanperspective_Final_edited.pdf (accessed 17 April 2016)

Swinnen, J. F. M. (editor) (2007) Global supply chains, standards and the poor. Wallingford: CABI Publishing)

Swinnen, J. F. M. and M. Maertens (2006) Globalization, privatization, and vertical coordination in food value chains in developing and transition countries. Plenary paper prepared for the International Association of Agricultural Economists Conference, Gold Coast, Australia, August 12 -18, 2006

Temple, N. and N. P. Steyn (2011) The cost of a healthy diet: A South African perspective. Nutrition 27, issue 5, 505-508. DOI: http://dx.doi.org/10.1016/j.nut.2010.09.005

Thebo, A. L., Drechsel, P. and E. F. Lambin (2014) Global assessment of urban and peri-urban agriculture: irrigated and rainfed croplands Environ. Res. Lett. 9. 114002. 9pp. doi:10.1088/1748-9326/9/11/114002

Tschirley, D., Haggblade, S. and T. Reardon (Eds) (2013) Africa's emerging food system transformation. White Paper. 2013 Series Global Center for Food Systems Innovation. Michigan State University

Tschirley, D., Reardon, T., Dolislager, M. and J. Snyder (2015) The rise of a middle class in East and Southern Africa: Implications for food system transformation. J. Int. Dev. 27, 628-646

United Nations (2014) World Urbanization Prospects: The 2014 Revision, Highlights. United Nations, Department of Economic and Social Affairs, Population Division. ST/ESA/SER.A/352

UNDESA (2014) World Urbanization Prospects: The 2014 Revision, Highlights. United Nations, Department of Economic and Social Affairs, Population Division (UNDESA) ST/ESA/SER.A/352

UNHABITAT (2015) Urban–Rural Linkages. HABITAT Issues Papers 10 http://unhabitat.org/wp-content/uploads/2015/04/Habitat-III-Issue-Paper-10_Urban-Rural-Linkages.pdf

Wenban-Smith, H. (2014) Rural-Urban Linkages: Tanzania Case Study. Working paper prepared for Rimisp as a contribution to a Desktop Review on Inclusive Rural-Urban Linkages commissioned by The Ford Foundation http://rimisp.org/wp-content/files_mf/1422298599R_ULinkages_Tanzania_countrycasestudy_Final_edited.pdf (accessed 17 April 2016)

World Bank (2007a) Horticultural producers and supermarket development in Indonesia. World Bank Report No. 38543-ID

World Bank (2007b) World Development Report 2008: Agriculture for Development. The World Bank, Washington DC

World Bank (2013) Rural-Urban dynamics and the Millennium Development Goals. Global Monitoring Report. Washington, DC: World Bank. DOI: 10.1596/978-0-8213-9806-7. License: Creative Commons Attribution CC BY 3.0

Zezza, A. and L. Tasciotti (2010) Urban agriculture, poverty, and food security: empirical evidence from a sample of developing countries. Food Policy. 35, 265-273

Zhai, F. Y., Du, S. F., Wang, Z. H., Zhang, J. G., Du, W. W. and B. M. Popkin (2014) Dynamics of the Chinese diet and the role of urbanicity, 1991–2011. Obesity Reviews, 15 (Suppl. 1) 16-26

Zhang, L. (2013) Food safety policy in China. Report prepared for the Social Science Research Council, USA (unpublished)