PBL Netherlands Environmental Assessment Agency

THE IMPACT OF URBANISATION ON FOOD SYSTEMS IN WEST AND EAST AFRICA

OPPORTUNITIES TO IMPROVE RURAL LIVELIHOODS

Sophie de Bruin and Just Dengerink

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The impact of urbanisation on food systems in West and East Africa: Opportunities to improve rural livelihoods

The Hague, 2020
PBL publication number: 4090

Corresponding author
sophie.debruin@pbl.nl

Authors
Sophie de Bruin, Just Dengerink

Supervisors
Jeannette Beck and Willem Ligtvoet

Ultimate responsibility
PBL Netherlands Environmental Assessment Agency

Acknowledgements
Willem-Jan van Zeist, Willem Ligtvoet, Lars Couvreur, Jonathan Doelman, Paul Lucas, Bas Arts, Frank van Rijn, Arno Bouwman, Martha van Eerth, Stefan van Esch, Henk Westhoek, Jeannette Beck, Bram Bregman, Michiel de Krom and Lotte de Vos (all PBL), Andrzej Tabeau and Thijs de Lange (WEcR), Astrid Mastenbroek (Ministry of Foreign Affairs).

The data provided in Figures 3.2, 3.3, 3.4, 3.7, 3.10 and 3.12 are output of Magnet model runs made for the Global Land Outlook, commissioned by the UNCCD and UNDP and financially supported by the Government of the Netherlands. These results are further discussed in Tabeau et al., (2019) and upcoming related publications.

Special thanks to Shuaib Lwasa from Makerere University, Kampala, Uganda for his helpful review.

Graphics
PBL Beeldredactie

Layout
Osage

Production coordination
PBL Publishers

This publication can be downloaded from www.pbl.nl/en.

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MAIN FINDINGS

The impact of urbanisation on food systems in West and East Africa

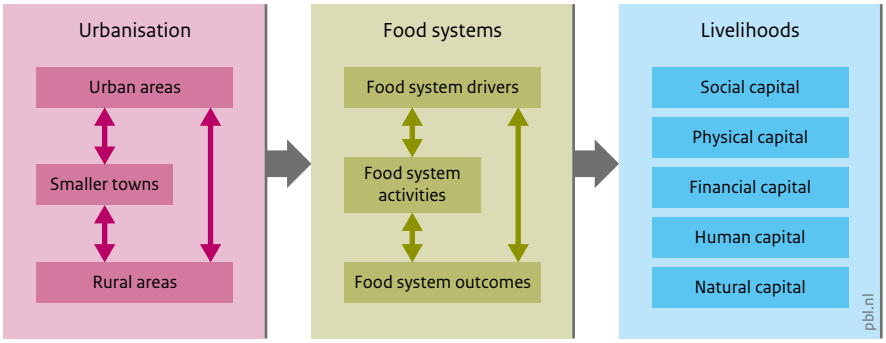
Urbanisation is an important driver of change in the production, trade, processing and consumption of food. In sub-Saharan Africa, an increasing number of people live in urban areas. Satisfying their rising and changing food demand in a sustainable and future-proof way, while providing farmers with a living wage, would achieve Sustainable Development Goal 2, which is to end all forms of hunger and malnutrition by 2030.

The rising and changing demand for food can stimulate local production responses, as well as processing and distribution opportunities. However, such opportunities are not possible without the efforts of various actors. The holistic approach taken in this study is conceptualised in Figure 1. This approach includes the analysis of the potential social, economic and environmental impacts of urbanisation on food systems and rural livelihoods, providing a novel overview of possible developments and corresponding opportunities. The focus regions of this study are West and East Africa.
These regions were chosen for two reasons. First, they are among the world's least urbanised regions, but will have the continent's highest urbanisation rates towards 2050. Second, these regions face various challenges in providing their people with sufficient and healthy food, now and in the future.

The potential opportunities that urbanisation can provide for rural development have not gone unnoticed by policymakers and researchers over the years, as strategic national, European and global policy briefs and recommendations have included and advocated this notion. For example, the New Urban Agenda specifically stresses the importance of rural–urban connectivity to achieve SDG2. However, the dynamics of urbanisation could be considered more explicitly in agricultural projects that aim to contribute to food security, employment and environmental sustainability. Diagnosing the most important obstacles to the connection of rural areas with growing urban regions could be a valuable contribution to new projects that aim to improve food security and rural livelihoods. Such consideration (or reconsideration) of the linkages between rural and urban areas is especially important in the light of the growing debate regarding national food self-sufficiency due to the impacts of COVID-19.

Figure 1

Conceptualisation of the research approach



Source: PBL

Urbanisation does not affect food systems in a vacuum. **Towards 2050, African food systems face four key challenges.** Actors working on these challenges need to have a solid understanding of the overall dynamics that shape these food systems, as discussed in this report. Central actors are local and national policymakers, because solutions cannot be imposed from Europe and other countries. The four key challenges are:

- **Providing sufficient food, now and in the future.** Food demand will increase approximately 2.5-fold in West and East Africa by 2050. This can in theory be met on the African continent; however, an increased need for agricultural land seems inevitable following current trends.
- **Ensuring healthy and affordable diets.** Food insecurity across the continent is an obstinate issue. Persistent poverty and income and capital inequality are major barriers to raising food security. On the other hand, overweight is a growing concern, although still for a small group today.
- **Making sure that agricultural production becomes more environmentally sustainable and resilient to environmental shocks.** Land and water use for agricultural production are projected to increase, which can affect the quality and functioning of natural areas. Climate change impacts are also projected to increase, decreasing productivity levels.
- **Raising farmer incomes and creating more off-farm employment, where needed, in dominantly agricultural economies**. Levels of inequality and poverty are still high in West and East Africa, resulting in relatively high levels of food insecurity among the less fortunate.

Changing food preferences in cities

The most important changes that urbanisation causes in food systems are rising food demand and changing food preferences. Although diets differ widely between countries, depending on cultural and geographical differences, there is also a difference between rural and urban diets. For example, urban consumers spend more on animal products, sugars, oils, fruit and vegetables and processed foods than rural consumers. Continued urbanisation and income growth are expected to further alter the diets of both the urban poor and the growing middle class. This may improve levels of food security in cities, but may also increase overweight and obesity rates, which are growing across the continent, particularly in the wealthiest countries.

The increase in the consumption of processed foods in West and East Africa has not yet benefited the regional processing industry. This could be caused by relatively high costs compared to imported food, due to the generally small scale of this developing industry. In the coastal cities of West Africa in particular, food imports have increased due to their affordability and convenience in the urban food environment.

Rural livelihood impacts

Urbanisation affects rural livelihoods in several ways. **Rural–urban migration** can contribute to the networks that rural people have in urban regions and their knowledge about food markets, strengthening their social capital. **Shorter distances to cities** can improve access to information, off-farm employment, utilities, inputs and services and rural infrastructure, in turn benefiting physical and financial capital. M**ore people living in cities,** with a growing middle class, need more food and more diverse diets, which can result in a local diversified agricultural production response, raising food security and improving human capital. However, this increased production also increases the use of land and resources, negatively affecting the environment. Furthermore, **the physical growth of urban areas** can impact on water and soil quality, as well as land use close to cities.

Main policy recommendations

Urbanisation can present an opportunity for rural livelihoods; however, this is not an automatic process. This study provides three recommendations to stimulate the potential positive impacts of urbanisation on rural development:

Contribute to dispersed urbanisation and secondary cities in both development projects and local and foreign investments. Dispersed patterns of urbanisation, with growing secondary cities, are more likely to contribute to rural poverty reduction and access to markets for rural communities than urbanisation that is centralised in megacities. Such poverty reduction and access to markets help in turn increase food security in rural areas. The stimulation of dispersed urbanisation and investment in secondary cities strengthen national value chains, reducing dependence on food imports and increasing opportunities

for rural people to benefit from the growing urban markets. Stimulating dispersed urbanisation as a donor country is however problematic, since spatial planning is, logically, in the hands of national and regional governments. However, understanding this dynamic could contribute to better coordinated and streamlined spatial planning in relation to local and national food systems.

Strengthen rural–urban linkages as part of development projects and foreign investments. Rural–urban linkages comprise the flows of financial means, knowledge, inputs, agricultural produce and people, and are a key condition to make urbanisation work for rural livelihoods. Good linkages between rural and urban areas are essential for the generation and redistribution of employment, income, agricultural products, finance and knowledge. Identifying the missing or weaker links between rural and urban areas could contribute to the positive impacts of development projects and national and foreign investments in agriculture.

Strengthen efforts to reduce inequalities between and within rural and urban areas. There is a risk that urbanisation benefits certain groups more than others, with low-income groups in urban and rural areas at risk of losing out under a scenario of continued economic inequality and rising food prices. If the rural and urban poor do not benefit from urbanisation processes, SDG2 will not be met, due to continued poverty and lack of access to food. Income and capital inequalities are high and persistent and undermine food security and resilience of livelihoods.

FULL RESULTS

1 Setting the scene

1.1 Introduction

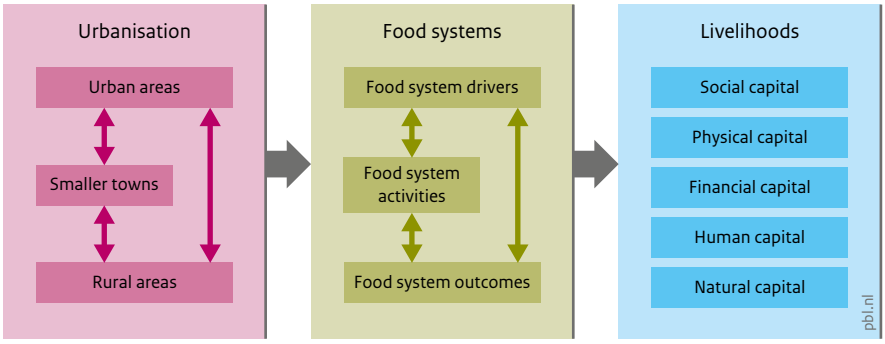
Urbanisation will play a key role over the coming decades in shaping food systems in West and East Africa. Urban growth due to population increases and rural–urban migration, as well as growing welfare — for some — will increase the demand for food by a factor of approximately 2.5 by 2050 (Tabeau et al., 2019; Van Ittersum et al., 2016). Moreover, a growing middle class will cause a shift in food preferences and change in diets (Tefft et al., 2017; Tschirley et al., 2015). These developments, combined with environmental degradation, lingering poverty, inequality and governance challenges, will have major implications for the way in which food is produced, traded and consumed.

This policy brief discusses the role that urbanisation can play in shaping food systems and the impact of these changing food systems on the livelihoods of rural people. Livelihoods are the means that people have of securing the necessities of life, which include social, human, physical, environmental and financial capital. Since rural livelihoods in sub-Saharan Africa depend to a large extent on food system activities — production, processing and trade — urbanisation will affect these rural livelihoods through food system changes. The approach of this study is conceptualised in Figure 1.1. Based on the insights provided, the study offers recommendations for different actors on how to use urbanisation as an opportunity to improve rural livelihoods through the food system.

West and East Africa[1] are the focus regions in this report. These regions are chosen because they are among the world's least urbanised regions but will have the continent's highest urbanisation rates towards 2050 (UNDESA, 2018). In addition, these regions face well-known challenges related to food security and poverty, which threaten political stability and human security. Throughout the report, data and examples are provided from seven focus countries in these two regions: Mali, Burkina Faso, Niger, Uganda, Kenya and Ethiopia, with extra consideration given to Nigeria, due to its major economic influence on the continent and its vast and rising demand for food.

[1] West Africa comprises Mauritania, Senegal, Gambia, Guinee-Bissau, Guinee, Sierra Leone, Liberia, Ivory Coast, Mali, Burkina Faso, Ghana, Togo, Benin, Niger and Nigeria. East Africa comprises Sudan, South Sudan, Uganda, Rwanda, Burundi, Kenya, Ethiopia, Eritrea, Djibouti and Somalia.

Figure 1.1
Conceptualisation of the research approach



Source: PBL

1.2 Key food system challenges

Understanding the effects that urbanisation has on food systems and subsequently on rural livelihoods is key in addressing Africa's four main food system challenges:

- *Meeting the growing food demand.* Towards 2050, food demand in West and East Africa will increase approximately 2.5-fold (Tabeau et al., 2019). Food demand will rise two to four times faster in urban areas than in rural areas, depending on the region and the commodity (Zhou and Staatz, 2016).
- *Ensuring healthy and nutritious diets for all.* In West Africa, approximately 15% of the population was undernourished in 2018; in East Africa, this was over 30% (FAO, 2019a). In both regions, food security has decreased in recent years. Also, overweight and obesity are growing concerns, due to the rising consumption of certain types of unhealthy foods (IFPRI, 2019).
- *Producing food sustainably.* Agricultural expansion to less productive soils is the main cause of the loss of natural areas (Van der Esch et al., 2017) and to less productive agriculture. Climate change, soil degradation and water stress will increasingly hinder agricultural productivity (Van der Esch et al., 2017; Ligtvoet et al., 2018).
- *Increasing rural incomes and employment.* Across Africa, productivity and rural incomes have stagnated, while youth unemployment is a growing concern. Crop diversification and off-farm employment can help to boost livelihood resilience (Christiaensen, 2014; Haggblade, 2010).

1.3 Policy relevance

Scientists and policymakers have become increasingly aware in recent years of the role that urbanisation plays in shaping rural economies and food systems, as urbanisation affects diets, employment opportunities and economic development in multiple ways. Central to the debate has been the New Urban Agenda, which was adopted during the Habitat III conference in 2016 (United Nations, 2016). This global agenda identifies important interlinkages between food security and urban development. It advocates more polycentric and balanced urbanisation, to strengthen the role of cities in enhancing food security. The development of small cities and towns is emphasised as a way of improving food security, and of reducing the pressure on megacities. The New Urban Agenda links on numerous topics to SDG2 (Zero hunger), and acknowledges that food security cannot be reached without inclusive urbanisation. Inclusive urbanisation means coordinated access for all to public services such as housing and healthcare, and sound environmental conditions including air and water quality, as well as the equal treatment of different ethnic groups and genders (United Nations, 2016). Inclusive urbanisation also entails stable access to healthy food. Unbridled urban growth can lead to the expansion of informal settlements, where the poorest groups live in the most vulnerable areas with limited access to resources, including healthy food (Dassen, 2017).

Recent reports have paid attention to urbanisation dynamics in Africa, with special attention for the important functions that small cities can have in food systems. Key publications in this area have been the 2019 IFPRI Food Policy Report (Diao, 2019) and the *An African–European Agenda for Rural Transformation* report by the European Commission's Task Force Rural Africa (2019). Both reports emphasise the importance of connectivity — in terms of physical infrastructure such as communication and knowledge — between rural areas and small to medium-sized urban areas for the quality of rural livelihoods.

Within the Netherlands, these global debates about urbanisation and food security have led to an increasing awareness among policymakers that the development of small cities must play a more important role in achieving SDG2. This is reflected in the recent policy note by the Ministry of Foreign Affairs, *Investing in Global Prospects* (2018), which states that: 'The Netherlands plans to set up integrated programmes in the field of food security, water and climate action around small urban growth centres. Rapid urbanisation not only poses huge challenges but also creates opportunities.' (p. 39). Correspondingly, the policy report *Towards a world without hunger* (2019), by the Dutch Ministry of Agriculture, Nature and Food Quality and the Ministry of Foreign Affairs, refers to urbanisation and the growth of small cities, which could serve as growing markets, creating off-farm employment. The notion that small cities and rural–urban linkages are important for improving food security and off-farm employment in agriculture is however not yet elaborated in ongoing projects. Because discussions regarding national food self-sufficiency are again on the agenda due to the impacts of COVID-19, it is important to consider, or reconsider, the linkages between rural and urban areas.

1.4 Objective, methodology and structure

The objective of this policy brief is to assess and better understand the impact of urbanisation on food systems and rural livelihoods. This is because urbanisation is one of the key drivers of food systems change in West and East Africa, and because rural livelihoods depend to a large extent on how these changes in food systems will unfold. This study focuses on urbanisation, but since this development cannot be assessed as a stand-alone factor, the broader food system dynamics are discussed as well.

This policy brief has three guiding questions:

- How are food systems in West and East Africa projected to change towards 2050?
- How are rural livelihoods in West and East Africa affected by food systems that change as a result of urbanisation?
- What opportunities does urbanisation provide for improving rural livelihoods through food system change in West and East Africa?

The questions are addressed using multiple methods. For the projections in Chapter 3, the IMAGE model (Stehfest, 2014) and the MAGNET model (Tabeau, 2019) are used, based on three future scenarios: the SSP1 scenario representing a sustainable and prosperous future, the SSP2 scenario describing a middle-of-the-road scenario, and the SSP3 scenario in which regional rivalry and high population growth diminish development and increase climate change impacts. The MAGNET model has been extended with more detailed regions in sub-Saharan Africa (Tabeau et al., 2019). The analyses in Chapters 2 and 4 are based on thorough literature research and interviews with experts.

This report is divided into five chapters. Following this introduction, Chapter 2 zooms in on the processes of urbanisation in West and East Africa. Chapter 3 then provides an analysis of the general dynamics of food systems in West and East Africa, showing past trends and projections towards 2050. Chapter 4 considers the impact of urbanisation on food systems and the impact of 'urbanising food systems' on rural livelihoods. Finally, Chapter 5 presents four policy recommendations for turning the impacts of urbanisation on food systems into opportunities for rural livelihoods.

2 Processes of urbanisation

To understand how urbanisation can impact food systems and rural livelihoods, this chapter zooms in on the dynamics of urbanisation in West and East Africa. The chapter discusses drivers of rural–urban migration, the difficulties in defining the urban share, dynamics of welfare and urbanisation, spatial dynamics and patterns of urbanisation, the role of small cities and rural–urban dynamics.

2.1 What drives urbanisation?

Urbanisation is caused by a naturally growing urban population plus migration from rural areas to cities. This process is shaped by a range of factors, including levels of education, economic development, policies, geographies and resource availability. Institutions are central to the spatial process of urbanisation (Henderson, 2007). National governments tend to favour certain regions or cities; typically, the capital region and — when present — major coastal cities receive a variety of advantages, including better access to capital and import–export licences and better provision of public services (Henderson, 2010). Favoured cities are in general much bigger than non-favoured cities (Henderson, 2007), partly because these cities are perceived to be more attractive to move to. Post-independence urbanisation in Africa has mainly been driven by people moving from inland, marginal rural areas to fertile agricultural areas and towns and cities that are often located in coastal areas (Flahaux, 2016). These patterns have been observed both between countries and within countries. Rural–urban migration is often driven by the perceived opportunities in urban areas (pull factors) and the lack of or decrease in opportunities in rural areas (push factors).

Rural–urban migration

Migration to cities, both temporary and permanent, is a common strategy to increase rural livelihood resilience by diversifying household incomes (Neumann, 2017). However, migration from rural areas to cities is perceived by many low- and middle-income countries as a concern. These concerns include rising unemployment, the lack of means to provide services to new arrivals, the proliferation of urban slums and, consequently, the potential for political unrest (De Brauw, 2014). Globally, 84% of low- and middle-income countries have policies in place to reduce rural–urban migration (Agergaard, 2019). However, it is not clear what the effects of such policies are in sub-Saharan Africa (De Brauw, 2014).

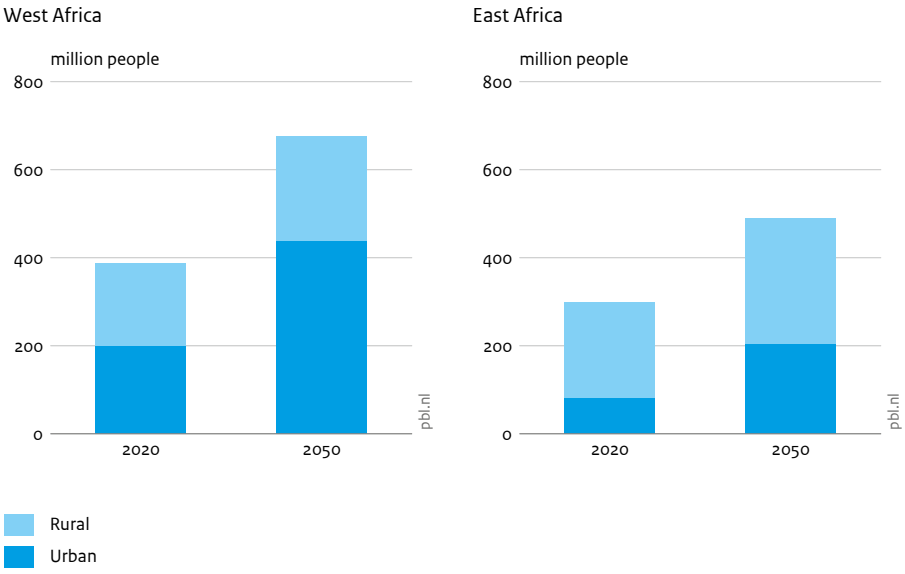
Despite the restricting policies and limited services for most migrants when they arrive in cities, rural–urban migration is expected to continue in African countries. Poverty, limited rural employment opportunities and decreasing land availability in some regions are push factors to leave. However, the poorest rural dwellers are not able to move, due to their lack of means to migrate. (Flahaux, 2016) show that migration to specific destinations is driven by the development processes and social transformation in some regions of Africa. Economic developments have increased the capabilities and aspirations of some Africans to migrate. This increased possibility to migrate has led to a debate about the relationship between migration and development efforts; in particular, whether development reduces the pressures that drive migration, or in fact stimulates migration by giving people the resources to move (de Haas, 2010; Clemens, 2014). This discussion is, among other things, borne out of the fact that African regions with comparatively higher levels of development, such as the Maghreb region and coastal West Africa, tend to have the highest levels of both international and rural–urban migration. On the other hand, the poorest areas, such as many landlocked countries in the Sahel, have lower levels of overall migration, most of which is short-distance migration to nearby cities or countries (Afifi, 2016). Rising welfare, for example in Nigeria, will most probably be accompanied by rising levels of both short- and long-distance migration, generally to the economically developing cities (Seto, 2011; Awumbila, 2014). However, it is important to note that many rural people prefer to remain in their communities of origin, also when opportunities to migrate arise (Afifi, 2016; De Brauw, 2014).

Climate change and environmental degradation can affect these migration movements, both by reducing them and by increasing them. In rural regions close to cities that focus on manufacturing, drier conditions have historically increased urbanisation as the cities offer an escape from droughts that affect agriculture (Henderson, 2017). However, in towns and cities that are oriented towards agriculture, reduced farm incomes from negative shocks also reduce demand for urban services and demand for urban labour. This dynamic reduces urban opportunities for rural dwellers (Henderson, 2017). A second dynamic that results from poorer environmental conditions has for example been studied in Burkina Faso, where a study by (De Longueville, 2019) showed that poor rainfall conditions stimulate short-term migration due to the immediate need to earn extra money. However, long-term migration decreases in times of drought, due to poorer socio-economic conditions that constrain such moves.

People may also decide to move back to the rural region that they came from. Most migrants become net food buyers when they arrive in the city and spend a large part of their disposable income on food, which puts them at a much higher risk of being food insecure. This became very clear in the 2007/2008 food crisis, when prices for staple food crops spiked and the urban poor were hit the hardest, leading to food-related riots and an increase in circular migration back to the countryside (Matuschke, 2009; Potts, 2009). The impacts of COVID-19 may also cause people to move back to the rural regions that they came from, if food prices increase and employment opportunities for non-skilled migrants decrease.

Figure 2.1

Rural and urban population in SSP2 scenario

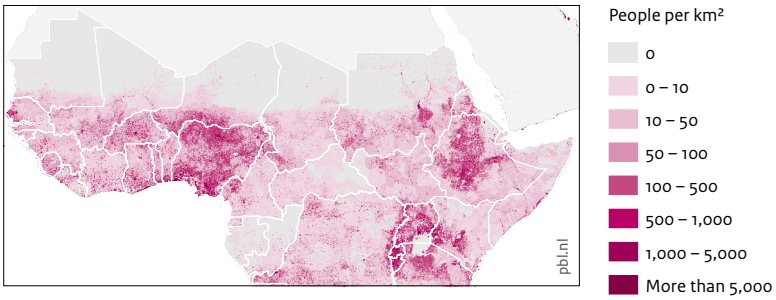


Source: PBL

2.2 The urban share: a definition issue

Population growth and urbanisation are expected to continue towards 2050, although the projected urban share largely depends on the definition of 'urban'. There is no shared international definition, since each country has its own classification to identify the urban population (Huijstee, 2018). These classifications can be based on political/administrative aspects, morphological characteristics related to population density and size or built-up area, or the functions that cities can have for their inhabitants (OECD/SWAC, 2020). The SSP2 projections given in Figure 2.1 derive from the definitions provided by the countries themselves, rather than one general definition. Consequently, comparing levels of urbanisation between countries is not precise, but rather gives a general overview.

Figure 2.2
Population density (SSP2 scenario), 2050



Source: PBL/2UP

The projected rapid population growth in rural and urban sub-Saharan Africa will make it even harder to distinguish between urban and rural areas in the densely populated areas. This separation, which was straightforward only a few decades ago, is becoming increasingly arbitrary because 'peri-urban' regions close to cities are often tied to both agriculture and day jobs in the nearby cities (OECD/SWAC, 2020). However, projected increases in population density can be provided with more certainty, and are very heterogenous, as Figure 2.2 illustrates. Nigeria, Uganda, parts of Ethiopia and the south of Mali and Niger will be relatively densely populated by 2050. Already densely populated areas are often more attractive to move to, due to the perceived employment opportunities and, if present, existing networks of family or friends (Flahaux, 2016).

Box 1. Data constraints: interpreting and projecting with 'poor numbers'

To project future economic, environmental or demographic developments and food-related changes, models make use of collected historical data and composite indicators. However, the quality of data is a lingering problem (Visser, 2020). This problem is the result of weak guesses, big errors, missing datasets and the difficulty of capturing complex social and economic realities and translating these into numbers (Jerven, 2016). Jerven (2013) argues that one of the most urgent challenges to facilitating economic development in Africa is the lack of statistical capacity. Development institutions allocate their resources and investments based on the available data. However, such data is biased since we have limited statistical knowledge about the people who live in low- and middle-income countries, which makes it difficult to tailor development funds to their needs. Future developments are uncertain, but so are the data that we use today. The data presented in this study are best guesses and the most reliable data available, and give a glimpse of what the future may hold.

2.3 Urbanisation does not always lead to welfare increase

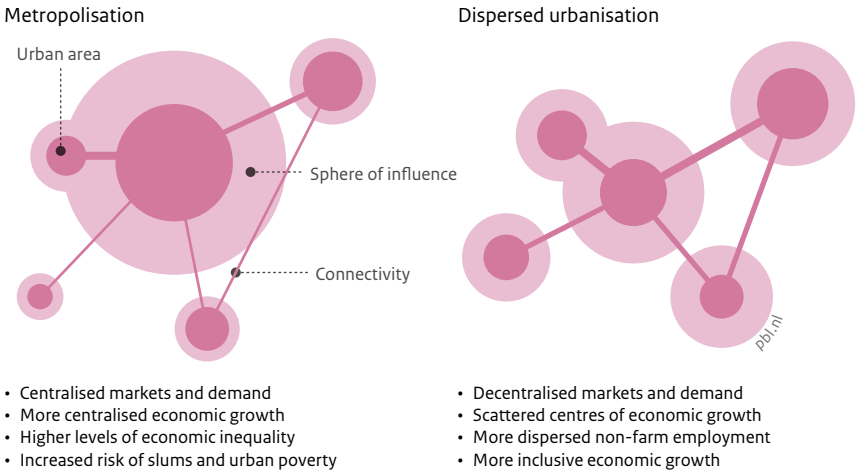
In most parts of the world, urbanisation goes hand in hand with income growth and structural transformation, which means an economic transformation from mainly agrarian to a more diversified national economy. There is however no simple linear relationship between urbanisation and economic growth, or between city size and productivity (Henderson, 2010; Turok, 2013). Because most of sub-Saharan Africa's economies largely depend on their agricultural sector, most employment also depends on agriculture. There is a decennia old debate as to why economic transformation has not taken place in most African countries, or only to a limited extent. This discussion focuses on three aspects. First, there are large differences in geographies, which makes it hard to spread technologies. Second, initial levels of urbanisation are considered to be low, resulting in too few large markets to stimulate increased production (Potts, 2012). This is partly caused by relatively low population densities in general. The third important factor that hinders economic transformation is the range of historical dependencies, which have put numerous countries in a disadvantaged position globally (Smith, 2019).

The pattern of poverty decreasing alongside urbanisation is less evident in sub-Saharan Africa than in other regions (Turok, 2013). For the majority of Africans, urbanisation has not led to big improvements in wealth, access to services and decent employment opportunities (Hussein, 2018). In low-income countries, two thirds of the urban residents live in slums (Dorosh, forthcoming). Furthermore, rapidly urbanising countries with the lowest levels of human development are most at risk of food insecurity (Szabo, 2016). The future potential of urbanisation to promote inclusive development, including improved food system outcomes, depends among other things on the patterns of urbanisation and the connectivity between urban and rural areas, as discussed in the following section.

2.4 Patterns of urbanisation and the role of small cities

As described above, urbanisation is not necessarily good news for inclusive development and does not necessarily imply welfare improvements for rural and urban dwellers. Two important factors that affect inclusive development are the spatial patterns of urbanisation and the quality of rural–urban linkages (Christiaensen, 2014; Akkoyunlu, 2015). In general, a geographically balanced pattern of cities, defined in this study as 'dispersed urbanisation', contributes to a wider spread of markets, which are therefore more accessible for more smallholder farmers. Farmers close to urban markets often receive higher returns on their agricultural products and benefit most from growing markets for high value products (Diao, 2019; Castle, 2011). These principles are illustrated in Figure 2.3. Encouraging high value, more intensive cropping such as horticulture in well-connected rural settings close to cities therefore makes sense. Rural and peri-urban households close to cities are also more likely to diversify their incomes, as they shift part of their employment in agriculture to rural non-farm employment (Diao, 2019; Djurfeldt, 2015).

Figure 2.3
Patterns of urbanisation



- Centralised markets and demand
- More centralised economic growth
- Higher levels of economic inequality
- Increased risk of slums and urban poverty

- Decentralised markets and demand
- Scattered centres of economic growth
- More dispersed non-farm employment
- More inclusive economic growth

Source: PBL

An extensive study by Christiaensen and Todo (2014) showed that a shift from agriculture to 'the missing middle'[2] (rural non-farm economic activities and employment in secondary urban regions) yields more inclusive growth patterns and faster poverty reduction than agglomeration in megacities. These smaller towns tend to contribute more to regional poverty reduction than larger cities, due to the generation of more local non-farm employment for the poor and the lower cost of living (Christiaensen, 2014). A growing local middle class[3] and expanding labour force can drive changes in local food markets that may further accelerate this trend. This takes place not only through urban low-skilled employment and rural incomes from food production, but also through remittances from migrated family members and access to services, knowledge and technologies, infrastructure, roads, transport, finance, markets and electricity.

2.4.1 The role of secondary cities

The growth of secondary cities is an important factor in the development of dispersed patterns of urbanisation. Secondary cities, which include both small to medium-sized cities (<300,000 inhabitants) and towns, contribute to a more balanced spread of off-farm employment opportunities and more inclusive economic development (Christiaensen,

[2] Veldhuizen et al. (2020) define the 'missing middle' more broadly to include government, the private sector, consumers and the research communities that link producers to consumption patterns.

[3] The term 'middle class' is slightly problematic, and estimates range from 18 to 300 million in Africa. Income and wealth inequality are high and no shared definition of the African middle class exists: see van Berkum et al., (2017, p. 8–9) for a discussion of the African middle class.

2014). These smaller cities and towns are also often considered to be safer and more liveable urban environments, with a higher quality of urban life and more potential for inclusivity for incoming migrants. Small cities and towns support local economic development and poverty alleviation, for example by attracting rural migrants who otherwise would have migrated to the bigger cities (De Brauw, 2014; Agergaard, 2019). Since a rising population in megacities (>1 million inhabitants) has little effect on poverty reduction (Imai, 2018), this does not encourage more inclusive development. In fact, the growth of populations in megacities increases poverty in some cases (Imai, 2018).

The growth of small cities and towns has been explicitly promoted by local, national and international policies, as emphasised by the New Urban Agenda (Agergaard, 2019). Investing in infrastructure and facilities in small to medium-sized cities and towns is crucial for connecting the various towns and cities (Torero, 2014). This insight is in line with concurs with one of the conclusions of the 2019 Global Food Policy Report by IFPRI, which is that integrating rural economies with small cities and towns can help to transform African rural areas.

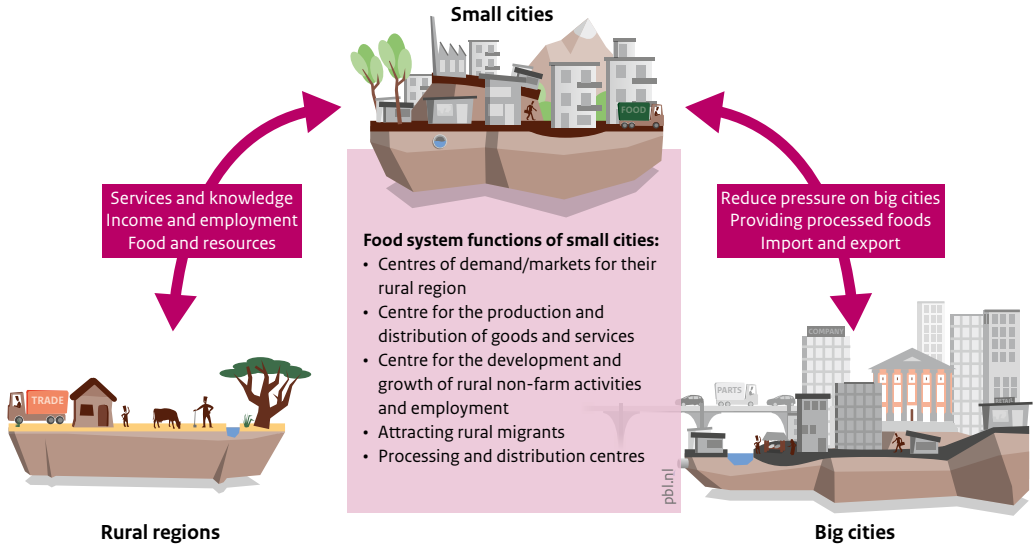
Cities and towns can have several functions in food systems that can contribute to improved outcomes, as illustrated in Figure 2.4. These functions are instrumental in enabling farming households to gain access to the market in towns. A decent connection to markets also helps increase crop marketing activities and fertiliser adoption and application. In these processes, the quality of the roads leading to towns and cities are important mediating factors, as well as the presence of markets and the strength of social networks (Tadesse, 2012).

Many of the small cities and towns in West and East Africa are already agricultural hubs to rural areas. Agricultural production is stored and processed in these cities and towns, and they are vital for the outward orientation of rural economies. However, most small cities and towns cannot offer their rural hinterland the required inputs and services at affordable prices (Satterthwaite, 2017). Improving the connectivity of these hubs with the larger city markets and with their rural hinterlands can create off-farm job opportunities and improve the functioning of the food system, making rural livelihoods more resilient to environmental and economic shocks (Fox, 2016; Tacoli, 2017).

The development of rural areas depends, as well as on physical urban proximity, on the quality of infrastructural services such as roads, knowledge, energy, credit and communication networks (Berg, 2016; Hussein, 2018). Especially in rural communities where agriculture completely dominates the economy, small cities can play an important role in providing access to inputs, markets and non-farm activities, contributing to poverty reduction (Satterthwaite, 2010). Figure 2.5 illustrates which areas are especially disconnected from cities (Meijer, 2018). In 2010, 12% of the people living outside cities had to travel more than three hours to reach a city in East Africa, equivalent to approximately 28 million people. In West Africa, this was 5%, representing almost 15 million people. People living in these secluded regions are among the most vulnerable, due to their limited access to inputs, services and markets, but also due to the lack of education and healthcare, which affects their ability to improve their livelihoods.

Figure 2.4

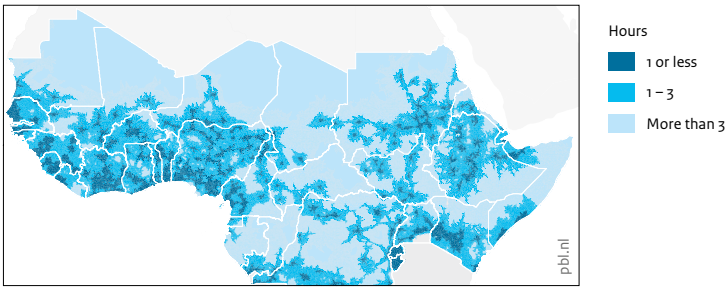
Towns and small cities have functions for both rural areas and larger cities



Source: PBL

Figure 2.5

Travel times to urban centre, 2010



Source: PBL/2UP

Box 2. The contribution of towns to rural development in Ethiopia

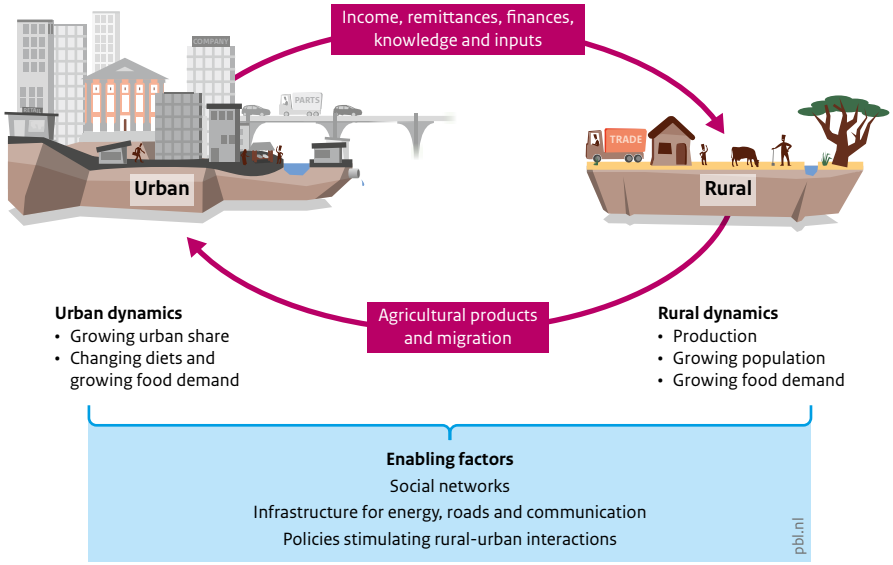
An extensive study conducted in Ethiopia on the functions of towns and small cities in terms of rural development showed that towns and small cities have a range of functions for development (Tadesse, 2012). These include providing off-farm employment, food markets and trading, inputs and infrastructure. Data from four major regions in Ethiopia were used to perform this study, which showed that some functions — such as roads, transport and communication services — enable commuting to towns where non-farm jobs are often concentrated. These functions facilitate the flow of information about mainly non-farm employment and help households take their products to markets at a lower cost. A second function is the provision of utilities, which contributes to the production process in non-farm enterprises and activities. This helps to increase productivity and efficiency, which increases the likelihood of employment and income from non-farm activities. The study also showed that towns positively influence the ability of households to access markets to sell their crops and buy inputs, especially fertiliser. The evidence suggests that road proximity in particular, as well as the quality of the roads, contributes to promoting crop marketing and fertiliser adoption and application.

2.4.2 Rural–urban linkages

The connections, or linkages, between rural and urban areas are essential for the generation and redistribution of employment, income, agricultural products, financial support and knowledge. The relationship between rural and urban areas changes as a result of urbanisation, due to changing regional densities and corresponding infrastructural demands, distances and level of connectivity (World Bank, 2009). Migration patterns and related urban–rural remittances may also alter, due to the changing appeal of cities and the lack of opportunities in rural areas (Awumbila, 2014; De Brauw, 2014). These developments can affect rural areas positively or negatively, depending on local policies, geographies, resources and historical relationships. The positive effects of urbanisation are more likely to be felt close to cities where the concentration of higher incomes and the nutrition transition affect the demand for agricultural products (both quantity and type) (Djurfeldt, 2015).

The economic and agricultural productivity gap in sub-Saharan Africa is partly a result of the lack of infrastructure, lack of access to social services and youth unemployment in rural areas, as well as the limited access to high-quality education and agricultural inputs (Hussein, 2018). Strong rural–urban linkages can decrease the economic gap, stimulating economic development and improvements in food security and nutrition. When linkages are strengthened and value chains are inclusive and fair, farmers can sell more of their produce in urban markets (Agergaard, 2019; Da Silva, 2017). Figure 2.6 illustrates the different linkages that exist between rural and urban areas. These linkages can be stimulated or blocked by the presence or absence of enabling factors. Enabling factors include social networks, good physical and communication infrastructure and policies that stimulate rural–urban interaction, which contribute to improved flows of goods, people and knowledge. Investing in these factors improves the connectivity, or linkages, between rural and urban areas.

Figure 2.6
Rural-urban dynamics



Source: PBL

Box 3. The rural–urban divide: different approaches

Although the approach taken in this policy brief recognises a division between rural and urban areas, a strict divide between 'urban' and 'rural' oversimplifies and even distorts reality (Tacoli, 2003). This notion is important, since rural and urban development practices and research often remain segregated, despite the interconnectedness of urban and rural populations and processes. *The territorial approach* (Task Force Rural Africa, 2019) argues that it is more productive to think about 'rural–urban' territories rather than maintaining a historical division that fails to recognise the realities of people's social and economic lives. From an urban perspective, the city region food system approach offers an integrative method to consider and develop policies and programmes across scales (Blay-Palmer, 2018). This approach includes urban, peri-urban and rural areas, and promotes the integration of regional and national governance mechanisms. The term *city region* does not only refer to megacities and the rural and agricultural areas surrounding them, but also to smaller cities and towns that can serve to link the more remote small-scale producers and their agricultural value chains to urban centres and markets.

The concept *rurbanomics*, suggested by Steiner and Fan (2019), originates from a rural perspective. This development approach premises on the potential of symbiotic rural–urban systems to transform rural areas. The approach aims for 'rural revitalisation' by improving rural–urban links, including growth and diversification in agricultural and non-agricultural activities.

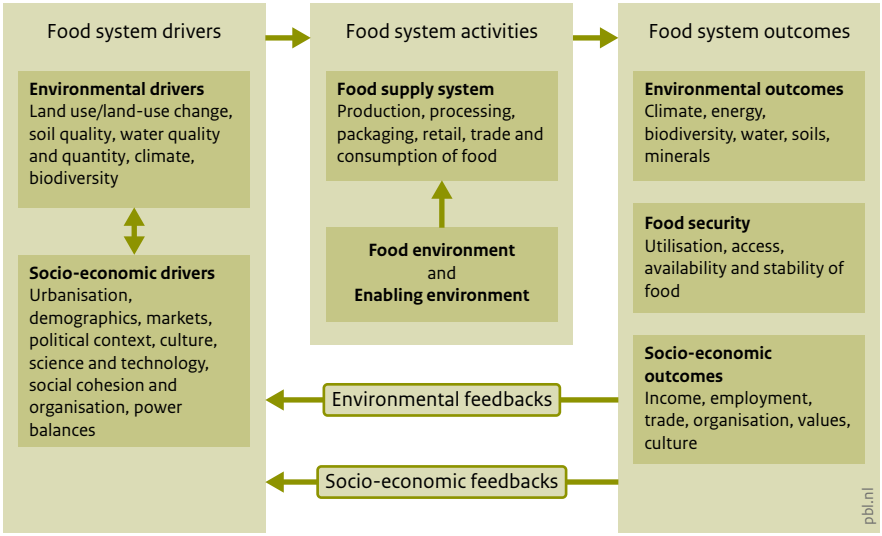
3 Food system dynamics

Although this policy brief centres on the impact of urbanisation on food systems and rural livelihoods, it is vital to place these impacts in the perspective of macro food system developments. In this chapter, some of the major socio-economic and environmental food system drivers are discussed to show how activities and outcomes are and will be affected by urbanisation in West and East Africa.

The food system approach

The food system approach has gained traction as a new and holistic way of understanding the key food system challenges. Figure 3.1, based on (Ericksen, 2008) and (Berkum, 2018), illustrates a conceptualisation of this approach. The approach aims to shift the emphasis of researchers and policymakers away from agricultural production and value chain dynamics towards a perspective that pays more attention to all drivers, activities and outcomes of the food system, as well as the possible feedback mechanisms within it. Food systems are embedded in broader socio-economic and environmental processes and, by applying this approach, users are invited to take the outcomes rather than production or consumption as entry points for change (Ruben, 2019). The approach helps to identify the trade-offs between the need to achieve more healthy diets and the need to increase food production and farmer incomes in a way that does not damage the natural environment. The approach can be applied to different geographical levels, from a local up to a global level. With this in mind, the Food and Agriculture Organization has worked together with other organisations to develop a Food Systems Dashboard (2020) to consider the different food system drivers, activities and outcomes for each country.

Figure 3.1
Food system dynamics



Source: PBL

3.1 Major trends in food system drivers

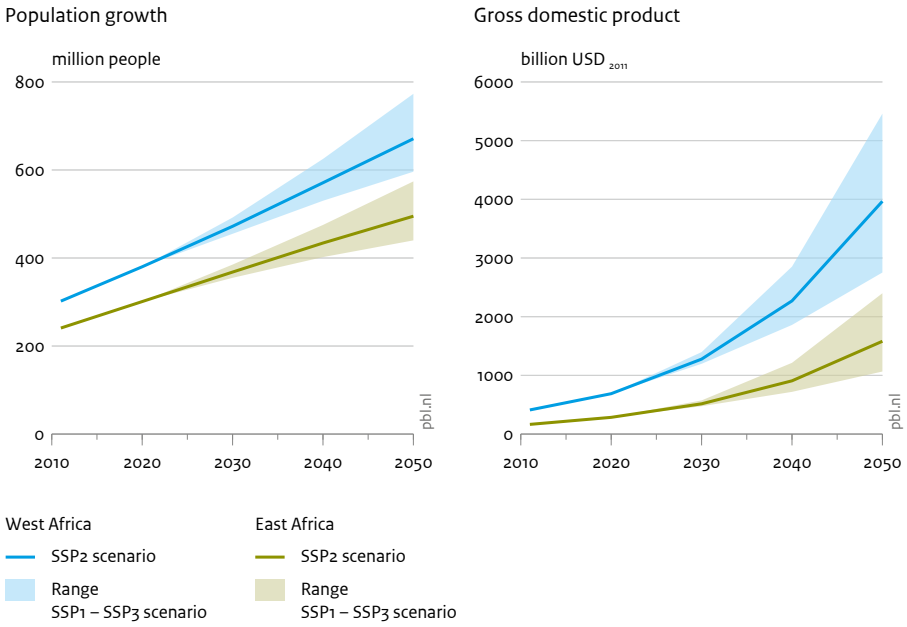
3.1.1 Socio-economic drivers

The socio-economic drivers of food systems are diverse and include, besides urbanisation, demographics, markets and economic developments, the political context, policies and scientific developments. The centrality of 'good governance', including institutional capacity and regulatory quality, cannot be stressed enough for ensuring progress in science and technology and creating an enabling environment for food system activities. However, beyond the qualitative acknowledgement of the importance of governance for food systems, quantifications of future governance scenarios — governance projections — have only been provided by (Andrijevic, 2020). These projections mirror the SSP scenarios, depicting governance in SSP1 as 'effective', in SSP2 as 'modestly effective' and in SSP3 as 'ineffective'. The factor 'governance' is also discussed in terms of the enabling environment of food systems in Section 3.2.5, which emphasises that better quality of governance is correlated with improved food system outcomes.

Most African countries have had unstable economic growth patterns over the last few decades. Since inequality, both in terms of income and property, has increased in most countries (Rao, 2019), poverty headcounts have not decreased in line with increasing gross domestic product (GDP). In some countries, poverty has not decreased at all, or only slightly.

Figure 3.2

Population and gross domestic product in West and East Africa



Source: PBL IMAGE/MAGNET

Nigeria in particular has a high number of people living in extreme poverty, despite its natural and economic wealth (Stephen, 2013).[4] Other countries, such as Ethiopia, Mali, Niger and Kenya, have managed to substantially decrease the share of people living in poverty. However, many of these people are at risk of falling back into poverty (<1.90 USD a day) as a result of climatic or economic shocks (Hallegatte, 2016).[5]

GDP is projected to rise in all countries in West and East Africa, both in absolute terms and per capita. High population growth however hinders per capita income growth. Figure 3.2 illustrates the projected GDP and population trends, starting from 2011.

[4] According to the most recent World Bank data, 53.5% of the Nigerian population lived in poverty in 2009, compared to 53.3% in 1985. The absolute number of people has therefore increased due to population growth.

[5] Oxfam estimated that COVID-19 may push millions back into poverty in sub-Saharan Africa, depending on the global economic impact. A 5% contraction in global income would result in an additional 26.3 million people living in poverty, and a 20% contraction in an additional 111.9 million people falling back into poverty.

Although average incomes are likely to rise, income inequality in sub-Saharan Africa is among the highest in the world: the top 10% of the population receives on average 65% of the national income, and the bottom 50% around 12% (Alvaredo, 2018). Since economic inequality is expected to remain high, or even rise further, poverty is likely to persist if no targeted measures are taken (Rougoor, 2015). Note that GDP projections are hard to make, due to numerous dependencies and uncertainties, including economic shocks.
The high-income growth projection for Nigeria in the SSP scenarios has come under particular criticism as it is regarded as overly optimistic (Smeets-Kristkova, 2019).

Population growth is and will continue to be one of the most important food system drivers in West and East Africa. Under the SSP1 scenario, the population of East Africa is projected to increase by 200 million, and that of West Africa by almost 300 million. These figures rise to approximately 330 million and 470 million respectively under the more challenging SSP3 scenario.

The development of food markets is an important driver of food system activities (production, consumption), but is also driven itself by socio-economic and food security feedbacks. For example, price changes are related to the dependence on food imports, the availability of arable land, productivity and the level of population growth. Figure 3.3 illustrates the wide range in food price development towards 2050 under different future scenarios. Agrifood prices are expected to rise in general, even without environmental impacts, which are not included in the analysis made for Figure 3.3. Crop prices will however largely stagnate or even fall in the coming decades. Even though more food per person is projected to become available in the period up to 2050, as discussed in Section 3.2, food and nutrition security for the poorest will only increase if these people can sustainably escape poverty, so that they can afford the rising food prices.

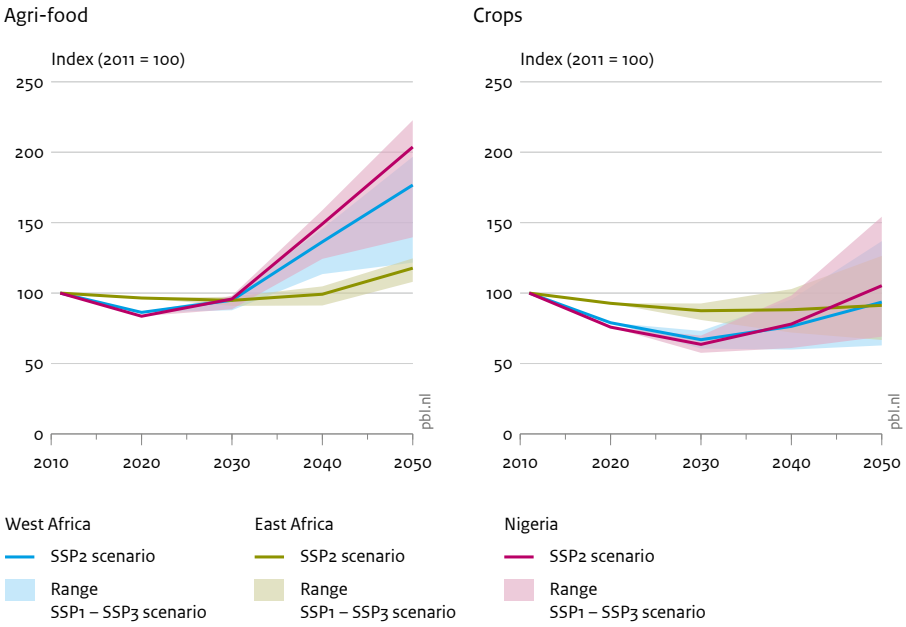
3.1.2 Environmental drivers

Environmental conditions differ widely between and within West and East Africa. Climate change projections for sub-Saharan Africa point to a warming trend higher than the global average, particularly in the inland regions (UNEP, 2016; Serdeczny, 2017). Projections range from 2 °C to 6 °C by the end of this century, depending on the emission scenario (Olsson, 2019). This increase can result in differing intensities of the more frequent occurrences of extreme heat events, increasing aridity and causing changes in rainfall (Serdeczny, 2017). Sub-Saharan Africa could also experience as much as one metre of sea-level rise by the end of this century under a 4 °C warming scenario (Serdeczny, 2017).

Water availability for rain-fed agriculture will remain a critical issue, especially in Burkina Faso and Niger and the Horn of Africa, as illustrated in Figure 3.4. Although some parts of East Africa are projected to receive more precipitation due to changing climate variability (Serdeczny, 2017), agricultural production is not likely to benefit. In fact, the potential water yield gap may even increase towards 2050, due to changing precipitation patterns mismatching growing seasons and an increase in the production of maize and cereals replacing grass on less fertile land.

Figure 3.3

Food price in West and East Africa



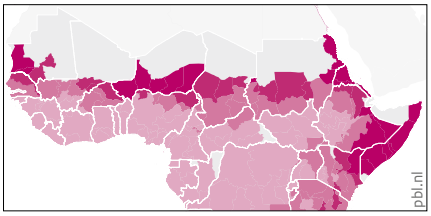
Source: PBL IMAGE/MAGNET

Nutrient deficiencies, as illustrated in Figure 3.5, and soil organic carbon loss are projected to be mainly an issue in the Sahel (van der Esch, 2017). Soil degradation processes limit the soil's ability to provide nutrients for sustainable agriculture. The limited availability of micronutrients (such as copper, iron and zinc) and macronutrients (such as nitrogen, phosphorus and calcium) limits crop yields and decreases the nutritional quality of the food produced. Most regions in West Africa face high levels of nutrient limitation for maize primarily, whereas East African regions often face a limitation of both nutrients and water (Mueller, 2012).

Figure 3.4

Water yield gap rain-fed agriculture

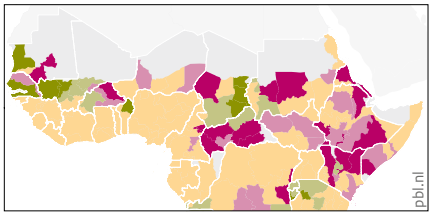
2010



Gap (%)

- 20 and less
- 20 – 40
- 40 – 60
- More than 60

Change 2010 – 2050



Change (percentage points)

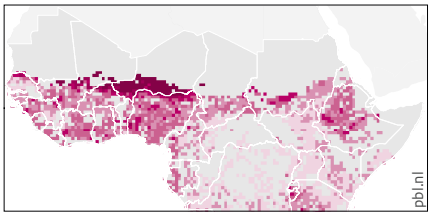
- -5 and more
- -5 – -2.5
- -2.5 – 2.5
- 2.5 – 5
- More than 5

Source: PBL/IMAGE

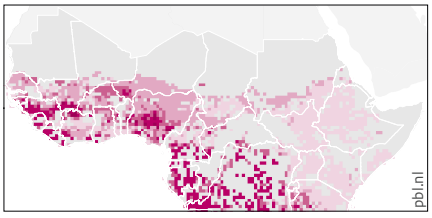
Figure 3.5

Estimated distribution of soil nutrient deficiencies

Micronutrients



Macronutrients



Number of nutrients with high probability of deficiency

- 0
- 1
- 2
- 3
- 4
- 5

No agriculture expected until 2050

Source: ISRIC; PBL/IMAGE

Box 4. Natural plagues and diseases in a context of climate change

Climate change will increase the risk of pests and diseases in African agricultural systems (Dhanush, 2015). Today, crop pests are estimated to account for one sixth of productivity losses. Livestock and aquaculture can also be severely impacted, since over half of animal diseases are estimated to be climate sensitive (Dhanush, 2015). The risk of plagues and pests will increase if capacities to deal with these threats do not improve (Dhanush, 2015).

The locust swarms that wreaked havoc in East Africa and the Middle East coincided with cyclones in 2018 and warmer than average weather at the end of 2019, combined with unusually heavy rains (Roussi, 2020). Large swarms were detected at the start of 2020 in Ethiopia and Somalia. From here, they spread rapidly to other countries, including Kenya — where they are the worst for 70 years — Uganda and Sudan. This plague is not only a matter of unfavourable weather, but also a result of underfunding in the monitoring of locust populations (Roussi, 2020). It is not just food security that is at risk — across the Horn of Africa and the Middle East, an estimated 20 million people are at risk of famine — but also rising poverty among rural smallholder farmers and possibly unrest in the already fragile Horn of Africa.

3.2 Shifts in food system activities

3.2.1 Production

Agricultural production volume has increased almost everywhere in sub-Saharan Africa in recent decades, as illustrated for seven countries in Table 3.1 and discussed more in-depth by (Huisman, 2016). While Mali, Niger and Ethiopia increased their production volumes relatively more than their population increased, the other countries faced a relatively larger rise in their populations. The increase in production has, on the one hand and mainly in land abundant areas, been the result of expansion of the area under cultivation, but on the other hand productivity has increased in certain regions (Deininger, 2011; Huisman, 2016). There is however still a large productivity gap, as illustrated for sub-Saharan Africa in Figure 3.8. (Breman, 2019) mention a range of reasons why agricultural productivity has lagged in several parts of sub-Saharan Africa, including the general neglect of agriculture by policymakers who favour industrialisation, the import of cheaper food outcompeting local farmers, the replacement of manure with fertiliser instead of a combination, and the general neglect of poor soils.

Table 3.1

Food production and population index 2015, 2005=100

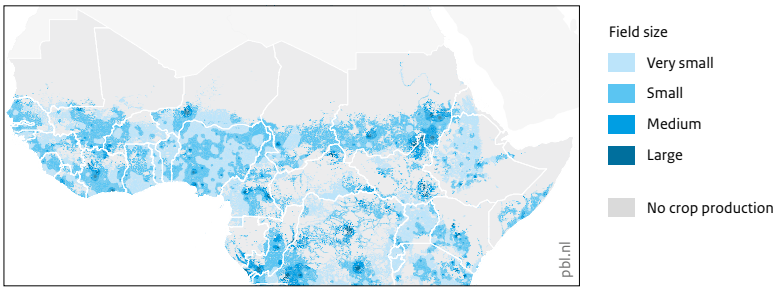
Country	Production index	Population index
Burkina Faso	122	135
Mali	160	136
Niger	163	146
Nigeria	126	130
Kenya	128	131
Uganda	101	140
Ethiopia	169	130

Source: World Bank, 2019; UNDESA, 2020.

Production towards 2050

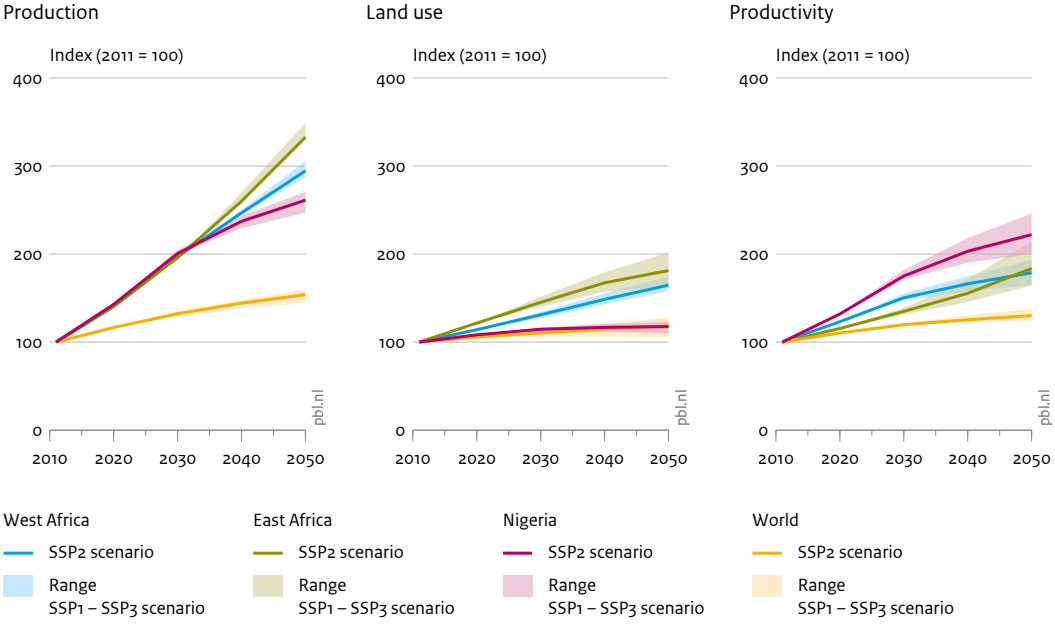
Due to increasing welfare, both land use and land productivity are projected to rise in West and East Africa, resulting in an increase in absolute production, particularly in West Africa. Figure 3.7 illustrates that increasing land use and productivity play equal roles in production increases. This is however not the case in Nigeria and some smaller and densely populated countries, such as Uganda, Burundi and Rwanda, where little extra arable land is available (Tabeau, 2019). This will affect the land rush currently taking place in these countries, which is often further accelerated by relatively wealthy urban families who acquire land in rural areas, attracted by the expectance of high returns on land and favourable policies (Nolte, 2017). Although land is still available in most other countries, this is usually less fertile than the land already in use for agricultural production (Doelman, 2018).

Figure 3.6
Farm field size, 2005



Source: IIASA-IFPRI GEOWIKI

Figure 3.7
Production and its contributing factors



Source: PBL IMAGE/MAGNET

Production is expected to rise steadily in both West and East Africa, as long as there are no shocks such as a pandemic or natural disaster. Urbanisation may stimulate productivity due to a rising and changing demand, depending on the proximity of urban centres and the connectivity of rural and urban regions.

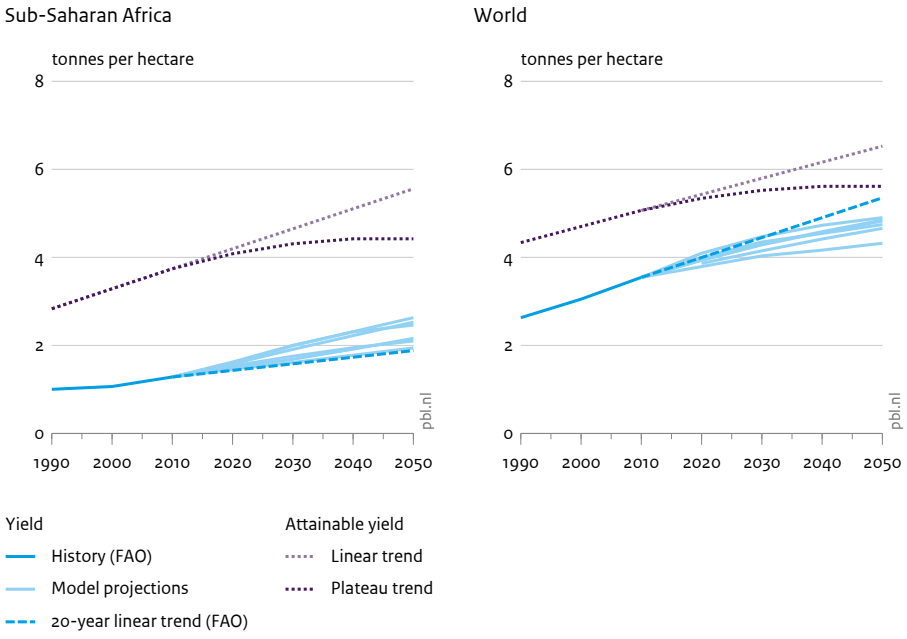
The magnitude of climate change impacts will also play an important role in yield increases. On average, a 1 °C increase in temperature in developing countries is associated with a 2.6% decrease in agricultural output, leading to estimates of economic growth reductions of an average of 1.3 percentage points for each degree of warming (Dell, 2012). However, the yield potential for sub-Saharan Africa is still several times higher than the projected production. Figure 3.8 illustrates the estimated potential and projected cereal yield in sub-Saharan Africa and the global average (for more detail, see van Zeist et al., 2020).

Production needed towards 2050

The rise in food demand between 2020 and 2050 will be around 2.5-fold, following a middle-of-the-road scenario in West and East Africa (Tabeau, 2019; Van Ittersum, 2016). This rise will be largely, for three quarters, caused by population increases, and for one quarter by welfare increases (Van Ittersum, 2016). Figure 3.7 projects a production increase of approximately threefold for West Africa and more than threefold for East Africa, which would be sufficient to meet overall demand by 2050, ignoring issues of distribution and accessibility. According to (Tabeau, 2019), the self-sufficiency ratio for the whole of sub-Saharan Africa will be 102% by 2050, slightly higher than today (100%). However, a considerable part of the expected production increase is met by increasing land use for agriculture.

An influential study by (Van Ittersum, 2016) states that, in theory, it would be technically and economically feasible to close cereal yield gaps in sub-Saharan Africa (represented by 10 countries) to 80% (from 25% in 2010), which is slightly lower than presented in Figure 3.8. Closing yield gaps to an optimal but hard to reach 80% implies self-sufficiency rates of 90% to 100% for West and East Africa. This development would imply common access to markets and sufficient inputs — conditions that are often elusive for smallholder farmers. However, (Van Ittersum, 2016) also showcase the maize yield increases in Mali, Ethiopia and Uganda as promising. It should however be noted that the analysis made for Figure 3.7, which calculates total production in 2050, implies a considerable increase in land use for agriculture, as closing yield gaps to 80% is not projected as achievable.

Figure 3.8
Yield and attainable yield of all cereals



Source: PBL

3.2.2 Processing

Food processing comprises the post-harvesting activities that add value to a product and that can help to preserve food for longer. Levels of processing are still low in West and East Africa due to costs, trade barriers and logistics, and limited knowledge and investment. However, the consumption of processed and packaged food is growing up to five times more in low-income countries than in high-income countries (Tefft, 2017), although this comes from a smaller start consumption. Urbanisation encourages more globalised consumption patterns, including the consumption of more processed foods (Djurfeldt, 2015). However, not only is the urban middle class increasingly consuming processed foods, but the diets of the rural middle class and lower income classes are also shifting towards more processed foods (Tschirley, 2015). This rising demand could bring about changes in all features of the food chain, and will presumably favour a growing role for supermarkets, as further discussed in Section 3.2.6.

Although there is no comprehensive understanding of modern food retailers in sub-Saharan Africa, (Berkum, 2017) found that most of these retailers import the majority of their consumer-oriented foods. Local food processing industries are mostly small scale and underdeveloped, and their produce costs more than imported foods. Furthermore, most of

the — often high value — agricultural products (cacao, nuts, beans, tropical fruits) exported by West and East African countries leave the countries unprocessed. An important reason for this is the higher international quality criteria for processed products, compared to those for raw products.

Box 5. Cashew processing in Burkina Faso

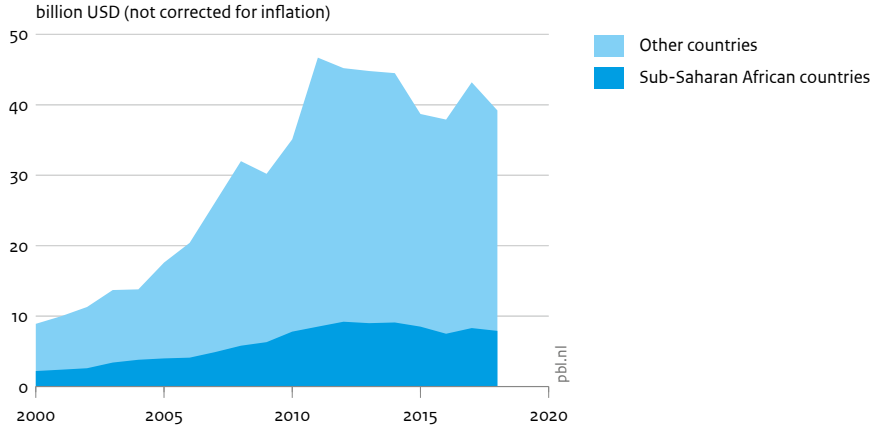
Cashew production in the south of Burkina Faso has grown steadily, from 5,000 Mt in 2000 to 85,000 Mt in 2018 (Nitidae, 2019), and the production levels of this high value crop are projected to rise further to 131,000 Mt by 2025. Nevertheless, only slightly more than a third of the capacity to process the raw product locally is utilised, with just 8.2% of national production processed within the country. Most of the crops are exported to India and Vietnam to be processed there. This means that the potential for adding more value and employment in Burkina Faso is high, and investment in local processing facilities could contribute to employment opportunities for both urban and rural dwellers. However, it is also important to understand why, currently, only one third of the processing capacity is being utilised.

3.2.3 Trade

Until the early 1980s, Africa was a net exporter of agricultural products, especially high value agricultural products such as coffee, cacao and spices (Rakotoarisoa, 2012). Although food exports have increased, sub-Saharan Africa has become a net importer due to a combination of factors. These factors include a growing population, limited targeted investments in agriculture, a productivity that lags behind other regions, and decreasing prices for high value export products. As a result, sub-Saharan Africa now spends more on its food imports, which have increased in absolute monetary terms since 2000 as illustrated in Figure 3.9 (although per capita imports have increased relatively less due to population growth). Several countries are finding it hard to meet the rising food import bills (Rakotoarisoa, 2012).

International trade dynamics have severely affected export possibilities and have reduced production incentives in some regions by disconnecting domestic consumption from national rural production. Particularly in the coastal cities of West Africa, imported food from world markets is often easier to obtain and cheaper, especially when rural–urban connectivity is low due to a limited infrastructure and weak supply chains (Vorley, 2016b).

Figure 3.9
Agricultural imports into countries in sub-Saharan Africa



Source: UN Comtrade

Trade agreements, protectionism and trade partners deserve more consideration than they are given in this section, because of their — not always well understood — short- and long-term impacts on consumption and production. In the 1990s and 2000s, food 'dumps' were a growing concern for West and East African countries. Agricultural products such as milk powder and broiler meat were 'dumped' below production cost, distorting local production dynamics (Vorley, 2016a). The European Common Agricultural Policy (CAP) has come under particular criticism for lowering world food prices, leading to 'food dumps' in food insecure countries and diminishing incentives to raise productivity (Bureau, 2018). Efforts by the European Union to improve food security in sub-Saharan Africa have become more coherent since the food price crisis of 2007/2008, in terms of goals and agenda, topics and policy instruments (Candel, 2018). However, the practical implications of these efforts are not yet fully clear (Candel, 2018), since other policies (e.g. EU bioenergy policies) continue to harm the poor's food security if global price effects are also taken into account (Bureau and Swinnen, 2018). Wealthy countries committed to removing subsidies for farm exports in the 'Nairobi Package', which was brokered at the 10th World Trade Organisation Conference in 2015 (Vorley, 2016a).

People who live in urban areas rely more on imported food, which is more affordable, attractive or convenient, and therefore block a production response from the rural hinterland (Vorley, 2016a). In some countries, import restrictions are being implemented to encourage a supply response from domestic production and to protect producers from extremes of international price volatility (Vorley, 2016a).

Box 6. The African Continental Free Trade Area: a game changer?

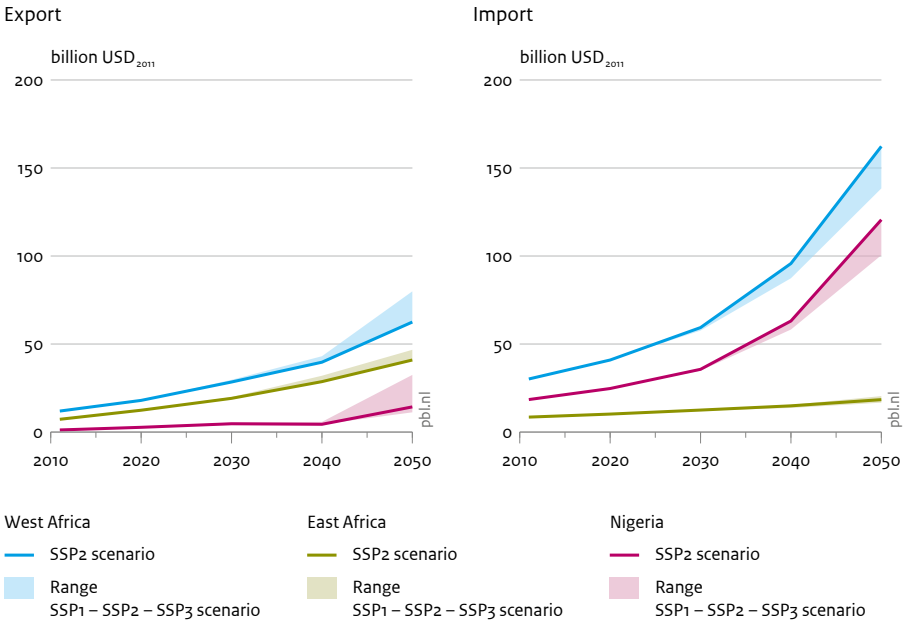
In 2018, the African Continental Free Trade Area (AfCFTA) was brokered by 44 of the 55 member countries, and was seen as an opportunity to change agricultural import and export dynamics. The countries agreed to eliminate tariffs on most goods, liberalise the trade of key services and address non-tariff obstacles to interregional trade, aiming eventually for a continental single market (IMF, 2019). The agreement aims to simplify trade within the region and stimulate economic specialisation. According to the IMF, this agreement will attract more foreign direct investment and facilitate the development of interregional value chains (IMF, 2019). Under the current situation, high tariffs within the African continent and colonial-era infrastructure make it easier for African countries to export to Europe or the United States than to each other.

Import and export projections

Projections for food imports and exports differ widely and depend on a range of factors, including national trade policies, conflict, climate change, access to inputs, access to world markets and world food prices, which all affect national production. Figure 3.10 shows import and export projections towards 2050 (also discussed in Tabeau *et al.*, 2019). West Africa, including Nigeria, is projected to see a steady rise in food imports, reaching around 500% by 2050, whereas food imports into East Africa will remain relatively low. Food exports — especially of high value products such as cacao, coffee, tea and fruit — are expected to rise exponentially in both East and West Africa. East Africa is projected to export more agrifood products, whereas West Africa will import more agrifood products in monetary terms.

Figure 3.10

Agricultural trade of West and East Africa



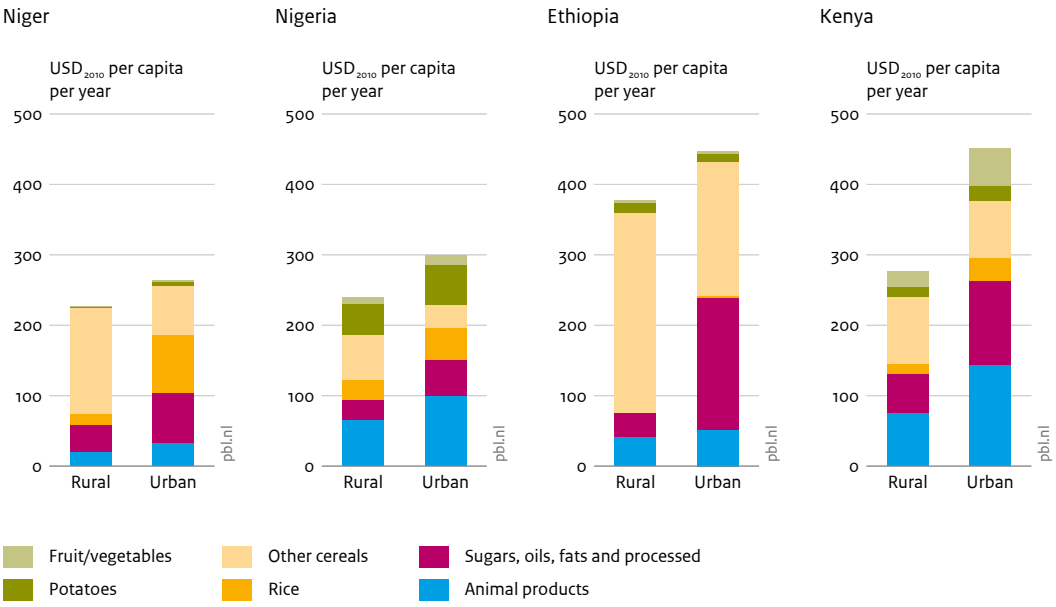
Source: PBL IMAGE/MAGNET

3.2.4 Consumption

Consumption patterns differ widely across West and East Africa, also within countries. These differences are the result of cultural and geographical differences, as described in Box 7. Figure 3.11 shows that spending on food differs between rural and urban areas, but also between countries. For example, Ethiopian diets rely mostly on cereals and grains, while rice is a central component of the diet in urban areas in Niger. While rural consumers spend most of their food budget on carbohydrates from cereals, rice and grains, urban consumers generally have a more diverse diet, with a higher consumption of meat, fish, dairy, eggs, sugars, oils, fats, fruit and vegetables.

Figure 3.11

Expenditures in West and East African countries, 2010



Source: World Bank Group

Urbanisation is associated with shifts in policies away from producer interests towards consumer interests (Vorley, 2016a). However, even though urban consumers often have better access to a more diverse diet, this does not mean that their diets are healthier. Urban consumers are more likely to eat out and to consume convenience foods, which are high in fat and carbohydrates but low in vegetables and other nutrient-rich foods (IFPRI, 2017). Especially among lower income urban residents, access to healthy foods such as fish, fresh fruit and vegetables is often limited, as these types of food are generally more expensive in urban than in rural areas. Poor households tend to prioritise calories over quality, spending their resources on more affordable, calorie-dense, micronutrient-poor food groups with higher levels of fat, sugar and salt (World Bank/FAO, 2017). The cost of a healthy diverse diet, as proposed by the EAT-Lancet commission, is too high for most people in sub-Saharan Africa (Hirvonen, 2019). In addition to this lack of a diverse diet for most people, overweight is also expected to increase. Due to the ongoing changes in the food environment and preferences, the consumption of processed and certain types of unhealthy foods is expected to increase further — leading to higher rates of obesity and a higher incidence of food-related diseases (IFPRI, 2019).

Box 7. Spatial distribution of staple crop consumption in Nigeria

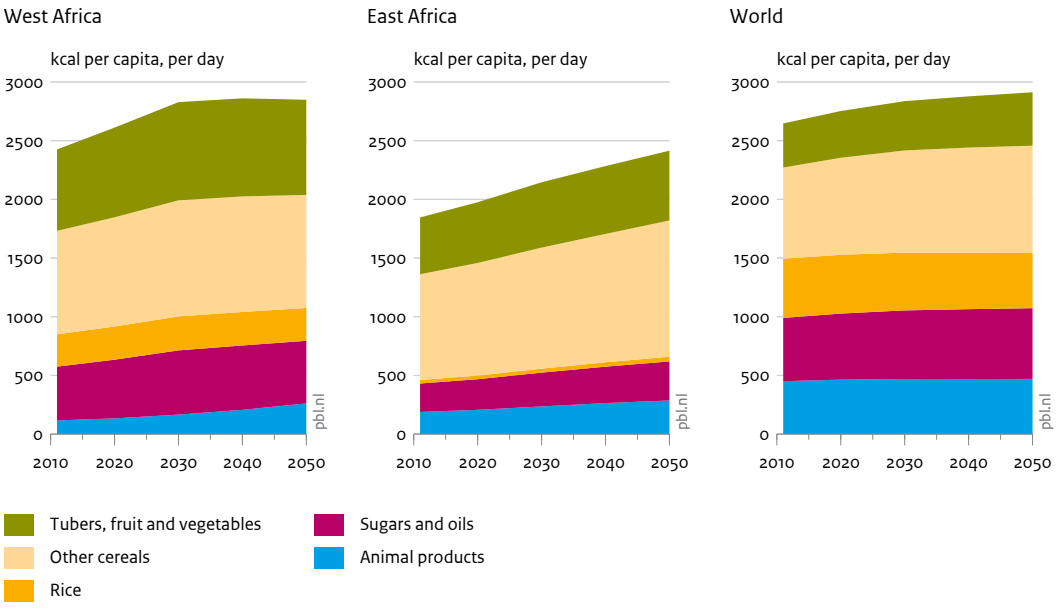
Although urban food consumption differs in many countries from rural consumption, the case of Nigeria illustrates that regional differences within countries can be at least as important. Here, the consumption of staple crops depends more on geographical variances than on rural–urban differences. An important explanation for these differences is the regional dominant production system. In northern Nigeria, sorghum and millet are the most important staple crops, whereas roots, tubers and maize are important for the southern regions. Rice is produced in the whole country, but mostly in the north. In fact, Nigeria is the continent's leading consumer and importer of rice, and one of the largest producers in Africa (FAO, 2019). However, a study from 2010 reported that Nigerians prefer imported rice to local rice because imported rice is free of stones and other debris and is perceived to have a better quality and taste (Bamidele, 2010). The fact that the South consumes more imported rice than the North could be explained by at least two factors. The South is richer on average, what makes imported rice more affordable. Thereby are the ports located in the South, what makes imported rice physically closer. Northern Nigeria is economically and culturally part of the Sahelian zone, poorer and less well connected to markets where imported foods are available.

Consumption towards 2050

Food consumption in West and East Africa is projected to rise approximately 2.5-fold under a middle-of-the-road scenario by 2050 compared to 2020 (Tabeau, 2019). This will primarily be driven by population growth (Hall, 2017; Tabeau, 2019), but changing per capita consumption due to higher incomes and urbanisation will also affect what people like to eat, which will depend in turn on economic development and distribution.

The overall availability of food is projected to rise due to increasing production and imports, as illustrated in Figure 3.12 for SSP2. Sufficient food in terms of kilocalories will therefore be available; however, the availability does not correspond to consumption at the local level due to the high levels of inequality and poverty in several regions. While West African countries will almost catch up with the world average, East Africa will lag behind under the middle-of-the-road scenario. In Nigeria, food availability may decrease from 2030 onwards due to limited land availability and food imports and a continuing rising population. Although Figure 3.12 illustrates the expected trends, these are not set in stone. Food availability is likely to increase, but this may change due to the uncertainty in population, welfare and environmental developments towards 2050.

Figure 3.12
Food availability



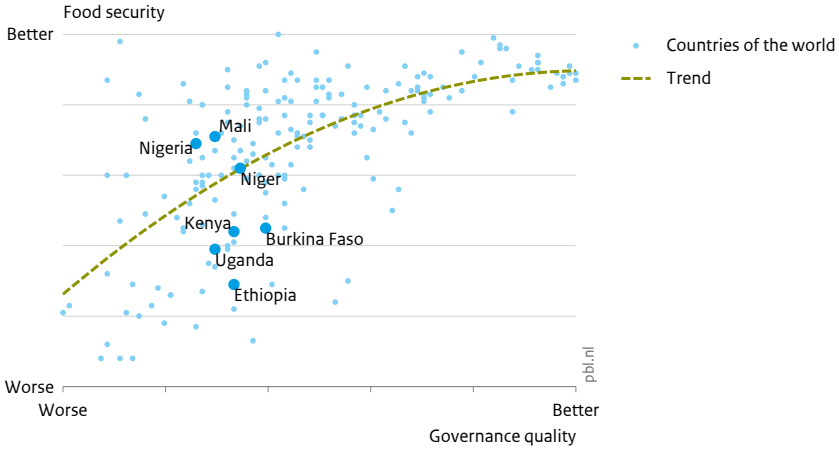
Source: PBL IMAGE/MAGNET

3.2.5 Enabling environment

The enabling environment affects the whole spectrum of the food supply system, since it creates the conditions in which the system functions (Berkum, 2011). The enabling environment is directly affected by governance quality, which is imbedded in policy, institutional, technological and financing options exercised at the global, regional, national and local levels. An enabling environment, including infrastructure, regulations, access to finance and inputs, institutions and research, is crucial in order to work on the four food system challenges. Figure 3.13 illustrates that 'good governance' is related to food security levels. Although there is a clear global trend, governance is not all-decisive. The countries included in Figure 3.13 all have a general governance level of around three, whereas food security levels differ extensively. This difference can be explained by various factors, including regional climatic differences, geographies, conflict and infrastructure (FAO, 2017).

Figure 3.13

Correlation between governance quality and food security, 2016



Source: FAO, World Bank

Issues with regard to an enabling environment are often imbedded in a context of inequal power distribution among stakeholders. This affects access to information and resources and the ability to exercise influence — especially for smallholder farmers — which contribute to equitable and sustainable outcomes (Lele, 2013). Often, there are huge trade-offs between the short-term wins of powerful individual stakeholders and long-term holistic solutions (Lele, 2013). Governance, and thus the enabling environment of food systems, is often presented as a problem-solving mechanism; however, poor governance is often the main driver of food insecurity (Candel, 2014; Zhuang, 2010; Vink, 2017). Conflict, lack of institutional capacity, poor policy design and slow implementation can seriously harm the production, distribution and consumption of healthy food (Candel, 2014). These aspects differ widely between countries in West and East Africa and therefore deserve tailor-made responses as a lasting part of projects that contribute to food system transformation (Vink, 2017).

3.2.6 Food environment

The 'food environment' includes the food that people can afford, that is marketed, and that is perceived as 'high status', healthy or culturally appropriate. This therefore affects what people consume (Herforth, 2015). The food environment, like the enabling environment, is affected by overall governance quality, which influences income, distribution and options to purchase. Dynamics of globalisation and urbanisation shape food environments all over the world, changing the physical food environment and, interconnected to the physical availability, the value and cultural appreciation of certain food types. Food environments are also altering in West and East Africa, due to the intertwined impacts of urbanisation, income growth and globalisation. A shift from traditional markets to supermarkets affects the types of food offered, as well as the food variety, food prices and shopping atmosphere,

all of which may influence consumer choices (Berkum, 2017). Understanding the links between changing food environments and food consumption patterns is important to promote food security and healthy diets.

Although the number of supermarkets in both East and West Africa has increased — mainly in the major cities — open-air markets still dominate in all cities (Berkum, 2017). The rise of supermarkets is hampered by relatively low incomes, as an income of less than USD 1000 a year is seen as an important limitation to supermarkets expanding (Berkum, 2017). A constant supply of products is also difficult, due to limited physical infrastructure and economic risks.

In countries where GDP is expected to rise steadily alongside urbanisation, food environments will change. An important aspect of well-functioning food systems is the presence of national food safety control systems, which monitor and regulate food-borne diseases. This is a key challenge in many West and East African countries, where most of the animal source foods and fresh fruit and vegetables are produced by smallholders and sold in open markets (Berkum, 2017). Availability and price are the main priority for buyers and sellers in these markets and among street vendors, rather than hygienic standards (Smit, 2016).

3.3 Changes in food system outcomes

3.3.1 Food security outcomes

The discussed food system drivers and dynamics produce a diverse set of food security outcomes that affect levels of undernourishment, stunting and obesity. The number of undernourished people in sub-Saharan Africa rose from 190 million in 2000 to 239 million in 2018 (FAO, 2019). In contrast, the share of the population that is undernourished decreased, from 28.4% in 2000 to 22.4% in 2018. A similar trend is seen in the number of stunted children under the age of five. The absolute number grew from 50.3 to 58.7 million between 2000 and 2018, while the prevalence declined during the same period (FAO, 2019).

However, as Table 3.2 shows, the average food security trends for the continent hide some important underlying differences. While undernourishment rates have dropped in East Africa, in West Africa they have increased. Also, whereas stunting levels decreased for Africa as a whole, stunting prevalence increased in countries such as Mauritania, Mali and Nigeria (FAO, 2019). A combination of climate shocks, conflict and economic slowdowns have worsened the food situation in many West and East African regions (FAO, 2019). Following global trends, obesity and overweight are on the rise in most of Africa. However, obesity rates are lower in western and eastern Africa than in southern and northern Africa, as is the rate of growth in obesity. Between 2012 and 2016, the prevalence of obesity increased by 1.3% in West Africa and by 1.1% in East Africa (FAO/IFAD, 2019).

Table 3.2

Detailed food security data

	Prevalence of undernourishment (% of population)		Prevalence of stunting (% of children under 5)		Prevalence of obesity (% of adult population)	
	2004–2006	2016–2018	2012	2018	2012	2016
WORLD	14.4	10.7	25.0	21.9	11.7	13.2
WEST AFRICA	12.3	13.9	31.5	29.2	6.4	7.7
Burkina Faso	24.9	20.0	32.8	21.1	3.6	4.5
Mali	11.1	6.3	27.8	30.4	5.9	7.1
Niger	15.1	16.5	43.5	40.6	3.9	4.7
Nigeria	6.5	13.4	35.8	43.6	6.4	7.8
EAST AFRICA	34.4	30.9	38.6	35.2	4.3	5.2
Kenya	28.2	29.4	35.5	26.2	4.8	6.0
Uganda	24.1	41.0	33.7	28.9	3.4	4.1
Ethiopia	39.7	20.6	44.4	38.4	2.9	3.6

Source: FAO (2019)

Box 8. Impact of COVID-19 on food security

The COVID-19 virus, which started spreading at the end of 2019, is expected to have an enormous impact on food security worldwide. This pandemic reveals that, although there is sufficient food to feed the world population, many people are highly vulnerable to food insecurity when their income vanishes, in this case as a result of the lockdowns around the world. Food insecurity risks are not expected to be mainly the result of a lagging production, but rather related to the disruption of markets, mobility restrictions and loss of income (Lecoutere, 2020). Rising unemployment is likely to reduce people's purchasing power, with the urban poor most at risk, as they depend on their daily wages in the informal economy to feed themselves. People with rural communities to return to will try to return home if travel restrictions allow (Lecoutere, 2020). Furthermore, families that rely on remittances and border crossings to meet their daily needs will also have a higher risk of food insecurity (Global Network Against Food Crises, 2020). As these households face reduced purchasing power, there is great potential for a decline in food demand, especially for high value products, decreasing the income of producers (Global Network Against Food Crises, 2020). This example illustrates that disasters of this kind of magnitude and severity have a large effect on jobs, incomes and food systems. A COVID-19 vaccine may be found, but we may see more viruses or disasters with a global impact.

Table 3.3

Economic food system outcomes

Country	Agricultural value added to GDP		Employment in agriculture in 2019 (%)
	2000 in %	2017 in %	
Burkina Faso	29	29	286
Mali	33	38	65
Niger	38	40	76
Nigeria	21	21	36
Kenya	29	35	57
Uganda	28	25	70
Ethiopia	45	34	65

Source: World Bank (2019)

3.3.2 Economic outcomes

Food system outcomes are a major contribution to GDP and employment in both West and East Africa, where agriculture accounts for 20% to 50% of GDP in the focus countries. While the role of agriculture in the national economy has shrunk in Uganda and Ethiopia, its share has remained stable in Nigeria and Burkina Faso. In Mali, Niger, Chad and Kenya, the contribution has increased, see Table 3.3.

African food systems are key to generating employment in the region, and the majority of the population in West and East Africa are employed in agriculture. Rural people are more likely to depend on agriculture, and the poorest households are generally most dependent on agricultural sources of income, both as income from crop and livestock activities and from agricultural wage labour (Davis, 2017). An exception is Nigeria, where approximately 36% of employment is in agriculture. At the other end of the spectrum, there are countries such as Niger and Chad with 76% and 81% of employment in agriculture respectively (World Bank, 2019).

Employment in the off-farm agrifood system is currently growing relatively more rapidly than employment in farming, although the growth derives from a lower base, which means that the absolute contribution to new jobs is higher on-farm than off-farm (Allen, 2016). The food economy presents a large and mainly unexploited potential for jobs that will continue to grow with population growth, urbanisation and income growth (Allen, 2018). This opportunity arises from the growing demand for processed and high-quality food. Rather than importing these food products from outside the continent, the regional

[6] This number gives an example of the unreliability of data. Although the World Bank/ILO data presented in the table estimate employment in agriculture at 28%, another World Bank document by (Weber, 2018) estimates this number to be 80%. Since over 70% of the Burkinese people live in rural areas, this last number is more likely.

development of the food chain could contribute to new employment opportunities both on- and off-farm, in rural and urban areas. However, while agriculture can provide more jobs, especially in post-harvesting, processing and agricultural services, agriculture alone cannot deliver the 20 million new jobs that are projected to be needed annually towards 2040 in sub-Saharan Africa (Abdychev, 2018). Several African countries are actively working towards increasing employment outside agriculture. For example, Uganda aims to decrease the workforce in agriculture to 31% by 2040, while Ethiopia aims to bring down employment in agriculture to 50% by 2025 (Thurlow, 2019).

3.3.3 Environmental outcomes

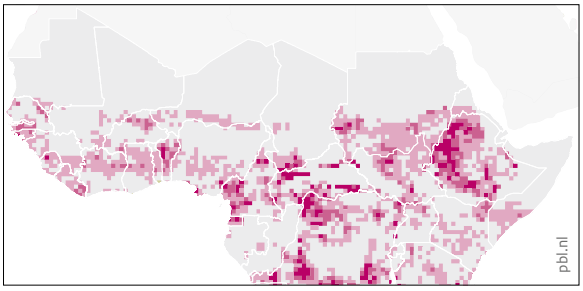
Food system activities affect the environment in many ways, leading to soil degradation, deforestation and reduced water quality and availability. With the expected growth in agricultural production, both in terms of productivity and land use, pressure on resources will grow and the environmental impacts of food systems are likely to intensify. About 500,000 square kilometres of land in Africa are estimated to be degraded due to soil erosion, salinisation, pollution and desertification. While some of this land degradation is caused by agricultural practices, such as over-cultivation and overgrazing, other factors such as deforestation and climate change also play an important role (UNEP, 2016). Water in lakes, rivers and streams across Africa is often polluted due to run-off from agricultural activities, which limits the availability of water for direct consumption. The projected increase in irrigated agriculture is expected to put another constraint on the availability of drinking water, as Africa relies heavily on groundwater for human consumption (MacDonald, 2012).

While deforestation in Africa is caused mostly by logging and fuelwood extraction, agriculture has played an important role in the destruction of West and East Africa's forests and other natural areas. Deforestation is often connected to the expansion of export crops such as cacao, tea, palm oil and sugar cane. While many of these crops are grown by smallholders, there has been a recent surge in investment contracts for the cultivation of large-scale palm and sugar cane plantations (Schoneveld, 2014). Although natural areas play a crucial role in both climate change mitigation and adaptation, more and more land is projected to be converted to agricultural land. Figure 3.14 illustrates the land-use change projections for the three scenarios. In all scenarios, a rise in agricultural land use is projected, causing large-scale deforestation (Doelman, 2018). Land claims for urban expansion, nature conservation and climate change mitigation will also rise, which will lead to more and more competing claims on the limited land resources (van der Esch, 2017).

Figure 3.14

Land-use change per scenario, 2015 – 2050

SSP2 scenario



Deforestation and conversion of other natural land (% change per grid cell)

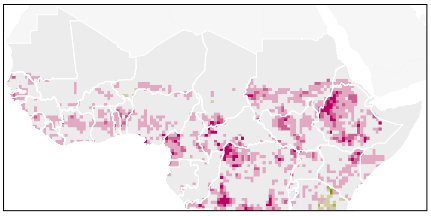
5 30 50 100

Reforestation and abandonment of agriculture to other natural land (% change per grid cell)

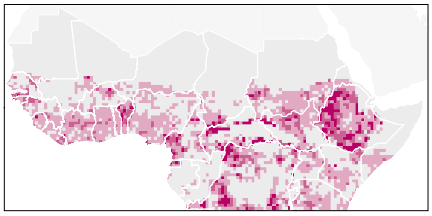
5 30 50 100

No or small change (less than 5%)

SSP1 scenario



SSP3 scenario



Source: PBL/IMAGE

4 Rural livelihood impacts

4.1 The impact of urbanising food systems on livelihoods

The previous chapters discuss the dynamics of urbanisation and the major food system developments in West and East Africa. The aim of this chapter is twofold: to further discuss the role of urbanisation in shaping food systems, and to show how these 'urbanising food systems' change the realities of rural livelihoods.

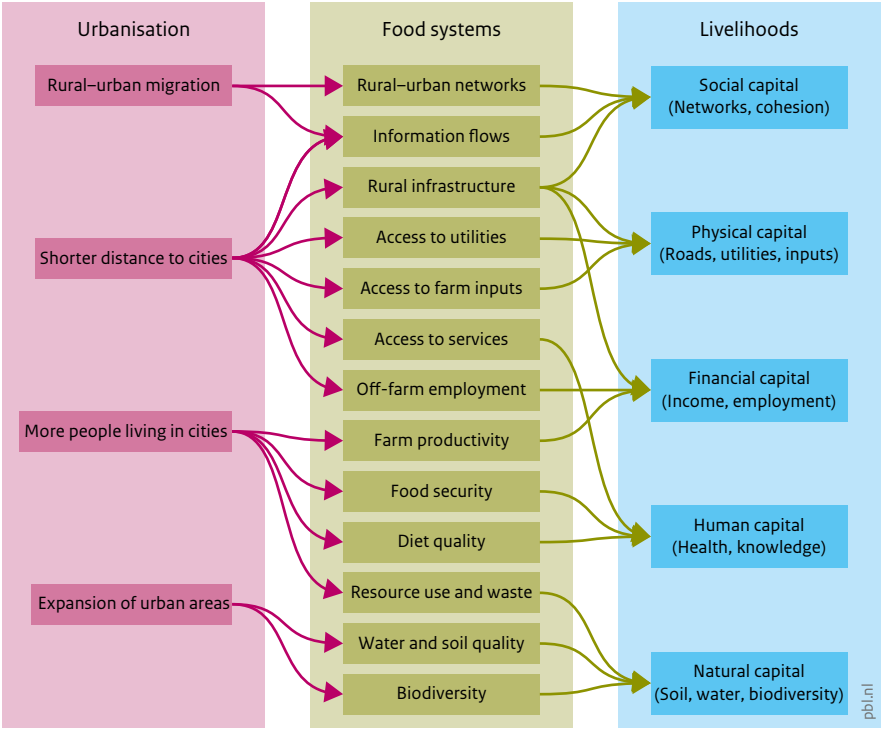
Urbanising food systems are defined in this study as food systems in which urbanisation is a key driver of change. Throughout this chapter, we show how urbanisation has become a central driver of change in West and East African food systems. To analyse the impact of urbanising food systems on rural development, we use the livelihood concept (DFID, 1999; DFID, 1999). Livelihoods are the means that people have to secure their basic necessities of life, such as food, water, shelter and clothing. People use different 'livelihood strategies' to improve their livelihoods, from growing their own food to selling their crops or finding off-farm employment. Rural households often rely on a very diverse portfolio of livelihood strategies (Scoones, 2009). A central feature in livelihood approaches is the concept of livelihood assets, which people can use to achieve their livelihood strategies (DFID, 1999; Scoones, 2009). These livelihood assets are: human capital, social capital, natural capital, physical capital and financial capital. Figure 4.1 shows the relations between urbanisation, food systems and these livelihood assets, which are explored in more detail in the remainder of this chapter.

4.2 Urbanising food systems and human capital

Human capital is the skills, knowledge, health and ability to labour that enable people to pursue different livelihood strategies (DFID, 1999). Urbanising food systems can influence human capital in three ways, as visualised in Figure 4.2. First, urbanised food systems tend to improve food and nutrition security levels, thereby improving health conditions (Eckert, 2014). Second, urbanisation often alters the food environment and food preferences of consumers, thereby changing their diets and health status. Finally, as cities grow closer to rural areas in urbanised food systems, people can access training and healthcare services more easily. This can lead to higher knowledge levels and the better health of rural dwellers, which can in turn boost productivity and income generation.

Figure 4.1

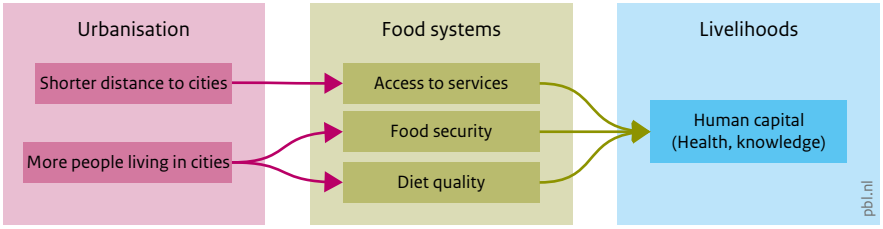
Linking urbanisation, food systems and livelihoods



Source: PBL

Evidence from West and East Africa shows that food security is generally higher in urban areas than in rural areas (van Wesenbeeck, 2018; Gebru, 2018). While 18% of West Africa's rural population is undernourished, this is 13% among the urban population. Chronic food insecurity among children in West Africa is also lower in urban areas, with 21% of urban and 35% of rural children suffering from severe or moderate stunting (van Wesenbeeck, 2018). Evidence from studies in Ethiopia shows that diet diversity is also higher in urban areas than in rural areas (Gebru, 2018). Therefore, more urbanised food systems are likely to have higher levels of food security, resulting in better health and a higher quality and availability of labour.

Figure 4.2
Linking urbanisation, food systems and human capital



Source: PBL

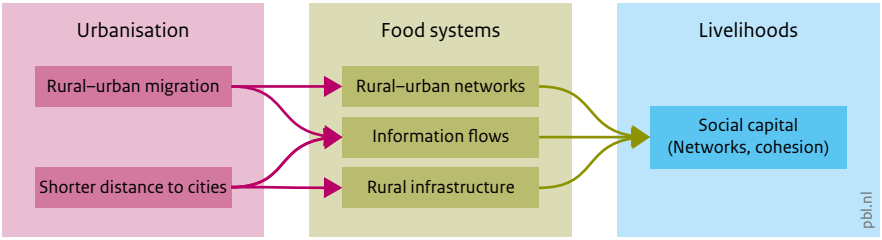
When people live in or close to cities, their food preferences and diets change. Since they have more access to supermarkets, food vendors and restaurants, they consume more animal products, processed foods, sugar, fats, oils and refined grains. These changes in diet cause higher levels of obesity, overweight, heart disease and diabetes (Popkin, 2014; Qaim, 2017). However, the apparent dichotomy between higher food insecurity in rural areas and higher obesity and overweight in urban areas turns out to be more nuanced in reality. Evidence from West Africa shows that the poorest quintile of urban dwellers is as likely to be severely or moderately underweight as the poorest quintile of rural dwellers (van Wesenbeeck, 2018). And, while obesity is generally more frequent in urban areas, it appears to be increasingly present among Africa's rural middle class (Tschirley, 2015).

Urbanisation can decrease the distance between rural areas and cities, providing better access to education and healthcare services. This leads to higher knowledge levels and the better health of rural dwellers, in turn boosting productivity and income (Tadesse, 2012). School enrolment in Africa is significantly higher in urban than in rural areas. While primary school enrolment is less than 50% in dominantly rural areas, it is over 88% in dominantly urban areas. The gap is even bigger for secondary education, where the enrolment rate is 12.2% for dominantly rural areas and 55.2% for dominantly urban areas (Arouri, 2014).

4.3 Urbanising food systems and social capital

Social capital is the collection of social resources from which people draw to achieve their livelihood objectives (DFID, 1999). Urbanisation can have three major impacts on social capital via the enabling factors of food systems, as visualised in Figure 4.3. First, urbanisation can strengthen social networks between cities and rural areas, connecting relatives, friends and businesses. Second, it can improve the flow of information between cities and rural areas regarding employment opportunities, access to markets, services and new technologies. Third, improved rural infrastructure, are contributing to the quality and accessibility of networks.

Figure 4.3
Linking urbanisation, food systems and social capital



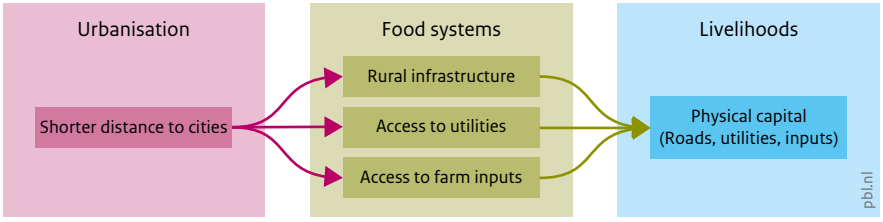
Source: PBL

The growing, sometimes temporary, migration flows of mostly younger family members to nearby cities results in a strengthened rural–urban network between rural dwellers and their migrated urban relatives, connected with each other through social relations, remittances and businesses. As the number and size of cities grow, the distance between rural and urban areas decreases, making it easier for rural and urban dwellers to maintain their relations (Christiaensen, 2014). Urban–rural social networks support a steady flow of information between cities and rural areas, as urban and rural dwellers communicate with each other physically, by phone or digitally, and exchange information on employment opportunities, access to markets, services and new technologies. As a result, households can more easily access employment, market their crops and improve their production practices.

The extent to which urbanisation results in stronger networks and communication flows is influenced by the spatial patterns of urbanisation. A growing concentration of people in megacities, such as Dakar, Accra and Lagos, can also create a disconnect with rural areas. As these coastal cities increasingly rely on food imports from overseas, they become less reliant on connections with their rural hinterlands (Vorley, 2016a). The rural infrastructure is the central element to strong rural–urban networks and communication flows. Not only in terms of roads, but also in terms of communication infrastructure.

The migration of rural populations to cities can also decrease their social capital, as they are no longer part of their rural networks and farmer associations. It takes time to forge new relationships and networks in urban environments, and processes of exclusion and discrimination may hamper the build up of social capital among rural migrants in cities. However, the density and energy of cities also offer new types of social networks. Moreover, some of the traditional rural networks and governance frameworks continue to play an important role in urban areas where large concentrations of migrants are found (Tieleman, 2019).

Figure 4.4
Linking urbanisation, food systems and physical capital



Source: PBL

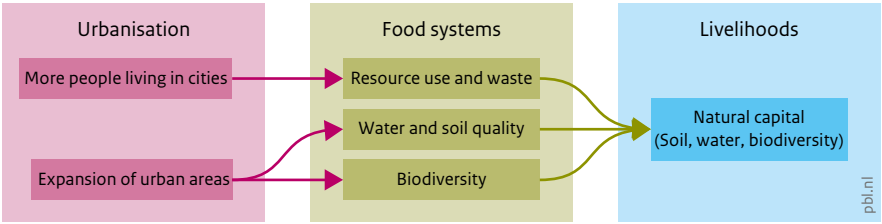
4.4 Urbanising food systems and physical capital

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods (DFID, 1999). Urbanising food systems can have a positive impact on physical capital in three ways, as visualised in Figure 4.4. First, more urbanised food systems can offer better infrastructure and communication networks between rural and urban areas. Second, urbanised food systems can result in broader access to electricity and tap water services. Finally, the urbanisation of food systems can result in the better access of rural producers to agricultural inputs and services.

The growth in the size, number and density of cities that comes with urbanisation often results in a growing network of roads that connects rural and urban areas. This shortens travel distances, increases access to markets and boosts agricultural production for rural producers (Berg et al., 2018; IFAD, 2018). Moreover, the spread of cities also expands and strengthens communication services, such as mobile phone networks and internet connections. These communication services can reduce transaction costs, improve the access of farmers to market information and support rural–urban trade (Tadesse, 2012).

The rising number and size of cities is also key to the expansion of electricity and tap water networks, since it is easier to provide for higher concentrations of people. Rural areas close to cities are easier to connect to these networks, which support non-farm enterprises in the processing, storage and distribution of agricultural products. These networks also benefit home-based enterprises and waged productive activities outside of agriculture, increasing the range of employment opportunities in rural areas (Tadesse, 2012). As urban areas grow closer to rural areas, rural producers may also have better access to agricultural inputs and services. This allows farmers to improve their productivity and increase their income levels (Christiaensen, 2014). However, evidence from Ghana shows that areas close to larger cities do not necessarily have a higher input use than areas further away from urban areas (Diao, 2019).

Figure 4.5
Linking urbanisation, food systems and natural capital



Source: PBL

Whether urbanisation does in fact improve infrastructure, utilities and access to services often depends on the pace and patterns of urbanisation and the capacity of governments to cope with the growth in urban areas. Many fast-growing megacities in Africa struggle to provide basic infrastructure and utilities to the fast-growing edges of their metropoles, resulting in urban slums with poor roads, services and housing (Abu-Salia, 2015). More inclusive urban planning is required to ensure that urbanisation goes hand in hand with better access to physical capital. Networks of smaller cities might be more effective for improving physical capital in rural areas, compared with more concentrated urban expansion in megacities. In these dispersed models of urbanisation, utilities and infrastructure are more spread out, which makes it easier for rural areas to access them (Christiaensen and Todo, 2014).

4.5 Urbanising food systems and natural capital

Natural capital describes the natural resources that people depend on for their livelihoods (DFID, 1999). Urbanising food systems can have three negative impacts on natural capital, as visualised in Figure 4.5. First, urban expansion leads to the direct and indirect loss of natural areas and biodiversity. Second, urban expansion into rural areas can lead to increased water and soil pollution and waste management issues. Third, urban diets require more industrialised supply chains and intensive production practices, which consume more water and energy and produce more waste and pollution.

The expansion of urban areas often infringes on existing nature and biodiversity. As cities grow, nature and farmland are converted into roads, residential areas or industrial areas, negatively affecting rural livelihoods and available farmland. However, natural areas are also affected indirectly. As farms in peri-urban areas make room for urban expansion, they often move further away from the cities and convert more remote natural areas into new farmland (van Vliet, 2019). The conversion of villages into larger towns also has an impact on natural capital. Often, these emerging urban centres struggle with environmental issues such as water pollution and waste management (Hoang, 2015). Across the world, urbanisation is associated with higher levels of air and water pollution (Duh, 2008).

Investments in roads and other infrastructure can improve rural–urban trade, access to employment and job creation (Gebru, 2018; Berg, 2016). While removing barriers to rural–urban migration may encourage economic growth, the benefits are likely to be larger with supportive policies, including education opportunities and infrastructure investments (Turok, 2013). When cities grow closer to rural areas, rural dwellers have potentially better access to urban services and the opportunity to diversify their incomes by starting a business or finding off-farm employment (Haggblade, 2010; Vorley, 2016a). As a result, rural households can raise their incomes, creating space for a growing rural middle class (Maniriho, 2018; Tadesse, 2012).

In urbanising food systems, the transition to urban diets often puts an additional pressure on the environment. These urban diets contain more animal products and processed foods, and often rely on more industrialised and lengthy food supply chains. These foods require more water and energy in their production, which uses more intensive activities of processing and distribution. Through these processes, these foods also generate more waste and pollution (Satterthwaite, 2010).

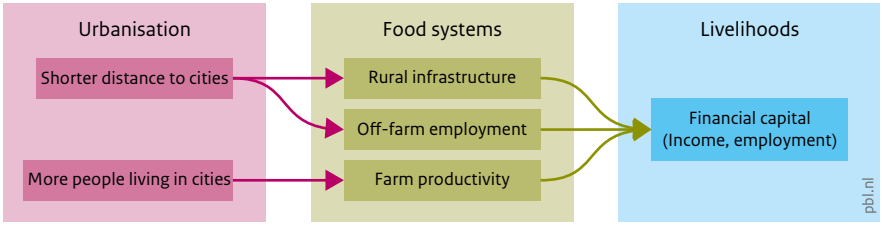
To mitigate the negative impacts of a growing urban share on the environment in both small and big cities, investments and local governmental capacity developments are needed in sustainable transport, waste management and water treatment. Circular agriculture can help address the negative externalities of the increase in food production that results from urbanisation. This means that urban food waste streams can be transformed into useful inputs for agricultural production, while agricultural production waste streams can be reused as construction materials, energy sources or fertiliser (Van Berkum, 2019; Wigboldus, 2019).

4.6 Urbanising food systems and financial capital

Financial capital is the collection of financial resources that people use to achieve their livelihood objectives (DFID, 1999). Urbanising food systems can contribute to financial capital for rural livelihoods in three ways, as visualised in Figure 4.6. First, rural development can take place through increased connectivity between rural and urban areas. Second, the decreasing distance between rural and urban areas makes it easier for rural dwellers to start a business or access off-farm employment, thereby generating more income. Third, increased urban demand provides an incentive to improve rural food production and boost farm productivity.

Figure 4.6

Linking urbanisation, food sytems and financial capital



Source: PBL

5 Making urbanisation work for rural livelihoods

In the previous chapters, we examined the food system trends in West and East Africa, analysed the dynamics of urbanisation and discussed the impacts of urbanising food systems on rural livelihoods. In this final chapter, we answer the research questions and provide recommendations for policymakers to make urbanisation work for food systems and rural livelihoods.

5.1 Conclusions

The objective of this policy brief is to assess and better understand the impact of urbanisation — resulting from urban population growth and rural–urban migration — on food systems and rural livelihoods. This objective was chosen because rural–urban migration and urban population growth are two of the key drivers of food system change in West and East Africa, and will remain so towards 2050. Rural people who live in these regions depend for a major part on food system activities, and are therefore affected by urbanisation due to changing and increasing food demand, changing employment opportunities and changing rural–urban linkages. Recognising that the impact of urbanisation differs in each country, this study assesses the general dynamics and impacts.

Food systems in West and East Africa are changing due to urbanisation, which is shaping diets and clustering the increasing food demand. While uncertainties towards 2050 are large due to interacting and unpredictable developments and events, food demand is projected to rise approximately 2.5-fold, mostly due to the increasing population. At the same time, diets are changing, affecting demand. As the urban population grows, more people will be net food buyers, depending on the affordability of food markets. Food production can rise across the whole continent to meet the increasing demand, but this required increase is unlikely without expanding land use for agriculture. Food prices may also rise, threatening the food security of the poor. A growing group of urban poor will make the population as a whole more vulnerable to price shocks, due to their dependence on day jobs.

The dynamics summarised above can benefit rural livelihoods in numerous ways. *Rural–urban migration* can contribute to the networks that rural people have in urban regions and

their knowledge about food markets, strengthening their social capital. A *shorter distance to cities* can positively affect access to information, off-farm employment, utilities, inputs and services, and improve rural infrastructure, in turn contributing to physical and financial capital. *More people living in cities,* who need more food and have more diverse diets, can result in a local diversified agricultural production response, raising food security and improving human capital. However, this increased production also requires more land and resources, negatively affecting natural capital. The *physical growth of urban areas* can affect water and soil quality due to rising consumption. Also, the growth of cities affects land use since more — often agricultural — land is needed for this growth.

Urbanisation could therefore represent an opportunity for rural livelihoods; however, there will not be an automatic spillover effect from development in urban regions. Key to this is the accessibility of the growing cities. This study shows that improving rural–urban connectivity and investing in small cities contributes to rural and urban food security and off-farm employment. Therefore, *although the idea of investing in small cities and rural–urban linkages has been mentioned in strategic Dutch and European policy briefs and reports, these aspects deserve more consideration in projects. Diagnosing the most important obstacles to connecting rural areas with growing urban regions when initiating a project related to food could be a valuable contribution to improving food system outcomes.* In the next section, we make recommendations and summarise why these recommendations should contribute to enhanced food system outcomes.

5.2 Recommendations

The recommendations that follow should be understood as a contribution to system comprehension. Understanding these dynamics and taking the insights into account when developing new projects or policies will improve the outcomes of these initiatives. However, recommendations cannot be implemented in 'splendid isolation'. The presence of capable and stable local governments is essential and can make or break initiatives.

5.2.1 Contribute to dispersed urbanisation and secondary cities

Whether continued urbanisation — due to population growth and rural–urban migration — contributes to food security, economic and environmental conditions, and consequently to rural livelihoods, depends on several factors. A key factor in the contribution to rural development is the spatial pattern of urbanisation: the way in which urban areas develop and expand spatially.

Evidence discussed in this study shows that more dispersed spatial patterns of urbanisation are more likely to contribute to inclusive growth and poverty reduction than urbanisation in rapidly growing megacities. Food systems and rural economies benefit more from dispersed urbanisation, as finance, inputs and markets in small urban centres close to rural areas are more accessible for rural households. Moreover, small cities and towns are an attractive location for businesses in agricultural services, food processing, storage and value addition, which generate off-farm employment for rural households.

Stimulating dispersed urbanisation could contribute to stronger national value chains, reducing dependence on food imports and increasing opportunities for rural people to benefit from the growing urban markets. However, planning dispersed urbanisation is problematic for donor countries, since spatial planning is, logically, in the hands of national and regional governments. Nevertheless, Dutch and European efforts to focus not just on the major cities can help to link smallholders to the growing and changing urban food markets, which is easier when travel times to cities decrease.

Projects by donor countries or investments by development banks can support small agribusinesses in secondary cities by improving their access to knowledge, finance and services. This can be done by improving the access of rural towns to education, healthcare, utilities, internet and mobile phone networks. Since investing in 'dispersed' urbanisation requires large efforts, the urban development policies of partner countries should be aligned with individual projects initiated by NGOs, local governments or intergovernmental organisations. For example, the National Urban Policy of Ghana provides a basis to work on dispersed urbanisation patterns to improve food systems and livelihoods. This policy includes the following goals: to create and develop new growth points as countermagnets to fast-growing cities such as Accra and Kumasi, to promote the accelerated growth of small to medium-sized towns (including district and regional capitals), and to ensure that existing and newly created centres adhere to good environmental and land management.

5.2.2 Improve rural–urban connectivity

The impact of urbanisation on food systems and rural livelihoods is not only determined by spatial patterns of urban growth, but also by the connectivity between urban and rural areas. Improved rural–urban connectivity contributes to the functioning of food systems and supports rural growth and job creation.

There are various rural–urban linkages that matter for food systems and rural development. These linkages can be physical, including the roads connecting cities and rural areas or the phone and internet networks enabling urban and rural dwellers to connect. However, many linkages are less visible, such as the digital transfer of financial remittances or family connections and business relations that connect rural with urban citizens. Strengthening these rural–urban connections as part of development projects and foreign investments can improve the flow of information and trade between urban and rural areas. This is particularly important for food systems, which depend on networks of well-informed and mutually trusting sellers and buyers to function optimally. The review of the Dutch food security policy between 2012 and 2016, *Food for Thought* (IOB Evaluation, 2017), confirmed that investing in roads raises farmer incomes and access to inputs, especially in remote regions, helping to create low-skilled jobs.

A lack of processing, storage and transport can 'break' value chains midstream, making it too expensive for smallholders to sell their produce on urban markets. Furthermore, better linking farmers to urban demand can serve as a production incentive; not just higher productivity, but also a more diverse range of produce.

Which of the various aspects of rural–urban connectivity deserves most attention depends on the strength of the different rural–urban linkages in a given context. A first assessment of rural–urban connectivity in a certain country or region can help to identify the stronger and weaker rural–urban linkages.

Table 5.1

Projects investing in improving rural–urban connectivity

Project name	By	Location	Goal
Rural mobility and connectivity project 2019–2025	World Bank	Niger	Improve and sustain road access of farming communities to production sites, markets and basic social services in order to improve incomes and productivity.
Project for Restoration of Livelihoods in the Northern Region 2014–2022	IFAD and partners	Uganda	Increase sustainable production, productivity and climate resilience on smallholder farms and provide increased and profitable access to domestic (cities) and export markets. The project also aims to improve rural–urban connectivity by constructing/improving roads, so that — in combination with the development of farmer associations — farmers benefit from better prices for their crops and reduce their post-harvest losses.

5.2.3 Continue to support inclusive development

Although urbanisation has the potential to contribute to food systems and better livelihoods, there is also a risk that urbanisation will benefit certain groups more than others. Low-income groups in rural and urban areas are at particular risk of losing out under a scenario of continued economic inequality and rising food prices. The urban poor are faced with low access to healthy food, while the rural poor struggle to find employment in increasingly less labour-intensive agriculture. If the rural and urban poor do not benefit from urbanisation processes, SDG2 will not be met. Since income and capital inequalities are high and persistent and undermine food security and resilience of livelihoods, policies are needed that ensure inclusive growth in urbanising food systems.

For rural areas, these policies should ensure that smallholder farmers profit from modernising and urbanising food systems. This requires investing in farmers' knowledge and skills so that they can produce for a changing, and increasingly urban, diet. Supermarkets may be growing, but informal open-air markets will remain the most important place where urban consumers buy their food. These markets require a supportive infrastructure combined with quality control for the food being sold. The investments in infrastructure, knowledge and social security can be made by individual projects initiated by donor countries or by foreign or local entrepreneurs working together with local businesses. Donor countries can also contribute to the capacity development of local and national government officials.

For urban areas, inclusive development implies that urban planning policies are in place to accommodate and support the inflow of rural migrants. Cities need to ensure access to good roads, electricity and clean water, as well as access to other cities and to the surrounding rural areas. Land governance and law enforcement also need to be in place to provide rural migrants with the security to build their livelihoods.

Finally, strengthening rural–urban linkages helps to reduce unequal development between urban and rural areas. For example, jobs in the trade, storage, processing, packaging and sale of agricultural products in cities can be a next step for the rural poor. However, employment in agriculture cannot provide the 20 million jobs needed yearly in sub-Saharan Africa. Increased employment in non-food sectors is therefore required to provide sufficient jobs towards 2050.

Table 5.2

Projects that focus on inclusive rural–urban development

Project name	By	Location	Goal
Leaving No Place Behind: Strengthening Urban–Rural Linkages in Africa	UN-Habitat	Cameroon, Guinea, Nigeria (Niger State) and Tanzania (Zanzibar)	Overcome the urban–rural divide by integrating urban–rural linkages into national policies. The project aims to enhance capacities of policymakers and change agents at all levels to collect and use evidence for fostering cross-sectoral, multi-level frameworks, strategies, and action plans for integrated and inclusive territorial development.
Value Chain Development Programme 2012–2022	IFAD and partners	Nigeria	Address constraints in the cassava and rice value chains through a holistic and demand-driven approach. This will be done through an inclusive strategy, strengthening the capacity of actors along the chain – including producers and processors – as well as public and private institutions, service providers, policymakers and regulators. The objective is to sustainably enhance rural incomes and food security.

5.2.4 Ensure coherence of efforts with existing initiatives

As shown in the previous sections, different options exist to make urbanisation work for food systems and rural livelihoods. New activities in the area of food security and urbanisation can be even more powerful if they are aligned with the numerous existing initiatives in the field. Examples of initiatives targeted at urbanising food systems are found among national governments, multilateral organisations, bilateral donors, NGOs and businesses. A few examples of existing initiatives are provided in the sections above to illustrate the many possibilities for alignment that are available.

The abovementioned examples, as well as initiatives resulting from the implementation of the New Urban Agenda and the SDGs, show that there is an active policy arena around the topic of urbanisation and food systems, which new initiatives can connect to increase their effectiveness and maximise their positive impact on rural livelihoods.

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PBL Netherlands Environmental Assessment Agency

Mailing address:
PO Box 30314
2500 GH The Hague
The Netherlands

www.pbl.nl/en
@leefomgeving

September 2020