



**ECOSOC • Integration Segment (27–29 May, 2014)**  
**SUSTAINABLE URBANIZATION**

**BUILDING  
THE FUTURE**  
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**FOOD AND AGRICULTURE  
ORGANIZATION OF THE UNITED  
NATIONS**

**Contribution to the  
2014 United Nations Economic and  
Social Council (ECOSOC)  
Integration Segment**

**Food security for sustainable development and urbanization:  
Inputs for FAO's contribution to the 2014 ECOSOC Integration Segment, 27-29 May**

**Between despair and hope**

Urban sustainability is dependent on ensuring sustainable food security and food production. Most of the world's poor live in rural areas – more than three quarters to be precise – while rates of malnutrition are highest among rural populations. Through migration, these rural poor are among the main contributors to the rapid increase in urban population observed in most developing countries. Many of these migrants remain poor in their informal urban settlements, and face even higher food prices and greater difficulties in accessing nutritious food. Furthermore, unemployment and food insecurity among poor urban inhabitants can lead to increases in crime and unrest.

We produce enough food in the world to feed everyone. Yet about 840 million people are food insecure and considered to be undernourished. The global poverty rate – the share of the population living on less than US\$1.25 per day – has been cut in half between 1990 and 2010, achieving the MDG target set by the international community ahead of the 2015 deadline. However, about 1.2 billion people continue to live in extreme poverty, and more than 75 per cent of them reside in rural areas and are primarily dependent on agricultural production. What is even more striking is that a high proportion of food insecure and poor rural people are subsistence farmers, herders, and fishers, especially in South Asia and Africa, who – while struggling to survive – are simultaneously called upon to play a key role in strategies to eradicate hunger and address the many challenges hampering both supply and demand for food.

Progress has thus been uneven, but the fact that we do produce enough food also carries a message of hope. We *can* end hunger. FAO is lending its support towards accomplishing this within a generation – that is, by 2030. If we can strengthen the productive capacities of smallholder farmers, herders and fishers towards to that end, we can simultaneously deal with widespread poverty and food insecurity in both urban and rural areas. As we know from successful economic development experiences in recent and not so recent history, economic growth tends to be more broad-based and pro-poor when initially rooted in agricultural productivity growth and rural development. China, South Korea, and Viet Nam stand out as relevant examples.

However, let this message of hope not blind us from the challenges we face. While these challenges are multiple, let us focus on three in particular, and their implications for the prospects of ending hunger, reducing poverty, urban development and environmental sustainability.

The three challenges are: shifting demographics; inefficient food systems; and environmental threats caused by and related to food and agriculture.

**Food security and sustainability challenges**

First is the **demographic challenge**. In fact, there is a triple challenge associated with current population dynamics. *Ongoing population growth* is the first. About 78 million people are added to the world's population every year. This means that, by 2050, the global economy would need

to be able to provide a decent living for more than 9 billion people, of which 85 per cent will be living in what are now developing countries.

*Accelerated urbanization* is the second element of the demographic challenge. In 2050, nearly 70 per cent of the world's population is projected to be living in urban areas. This process will accelerate in developing countries in particular. This may create problems of its own, such as the challenge of creating sufficient decent jobs in urban areas. If left unaddressed, it will transfer widespread poverty and high unemployment to urban areas, especially among youth. The resulting inequity among urban inhabitants could lead to social and political instability.

Growing urban populations will also place pressure on municipalities to improve their resilience to natural and human disasters. Disasters can be a source of increased migration towards cities, but can also be a consequence of densely populated areas that lack access to food and water.

Larger urban populations will also change food and land-use patterns – a fact with potentially vast implications. Urban growth has influenced changes to dietary patterns. This is reflected in increased per capita meat consumption, which has risen by about 25 per cent over the past decade. While meat is an important source of protein, under existing livestock production methods, higher demand would lead to land-use shifts and further deforestation, higher energy use, rising food prices and regional food shortages.

Because of the growth of the world population and further increases in demand for high-protein food, FAO estimates that food production will need to increase by about 60 per cent from current levels. That sixty per cent increase may not be easy to achieve given the third leg of the demographic challenge: *ageing*. This holds in particular for farmers and rural populations. Sixty seems to be an important number here. The average age of farmers in the United States and other developed countries borders on 60. In Africa, the average age of farmers is also about 60, despite the fact that 60 per cent of Africa's population is under 24 years of age. So as farmers are getting older – and as many of them are women with less access to productive resources, especially in developing countries – this raises questions about future prospects for increasing farm productivity. Rural youth are looking for a better livelihood in the cities. Can this pattern fit a sustainable future?

The second key challenge we face is that our global **food system is highly inefficient**. While we produce enough food, we face a double nutrition burden of under- and overnutrition. Inefficiencies are also visible in enormous food losses and food waste. There are no precise estimates for this, but rough indications suggest that worldwide losses or waste of food amount to between 30 and 50 per cent of all food produced. Food loss occurs mainly after the harvest, and is more often a problem in developing countries. Meanwhile, food waste is primarily a problem of rich countries, where around 220 million tons of food is estimated to be wasted every year. That is almost as much as the entire net food production of sub-Saharan Africa. However, it would be overly simplistic to suggest that eliminating food losses and waste will solve the problem of hunger and malnutrition. For that, we also need to solve obstacles related to the poor's access to food, inefficiencies in distribution systems, trade-offs with the use of food for non-human consumption and loss of diversity in food production. This loss of diversity is visible in the fact that many of the 7,000 crops used for human consumption over the centuries have disappeared or have been neglected or abandoned. With this, we are also losing biodiversity. The food we are losing is being substituted by a handful of food commodities that have become the basis of diets worldwide, namely rice, wheat, maize, soybean and potatoes, which make up

almost three-quarters of all the food we consume. This “specialization” and the intensive production of these crops have consequences for ecosystems, biodiversity and our health. A different consumption pattern is possible. There are still thousands of different types of plants, tubers, roots and seeds that can be incorporated into our diets. Some are under-utilized, others forgotten. One example is quinoa, the Andean "super food", which is a highly nutritious cereal-like crop that is rich in protein and micronutrients. To promote its production and consumption, FAO celebrated the international year of quinoa in 2013. The diversity in our diet is closely connected to culture, which is also being lost through globalization.

Spurred by subsidy policies and rising energy prices, food production for biofuels has become a major competitor for human food consumption. In less than a decade, global biofuel production has increased fivefold, from less than 20 billion litres in 2001 to over 100 billion litres in 2011. The steepest rise in biofuel production occurred in 2007/2008, concomitantly with a sharp rise in food commodity prices, which led to “food riots” in the cities of many developing countries. Biofuel production was certainly not the only cause, but undoubtedly contributed to the tightening of markets and increased food price volatility.

The third and final challenge is **the environmental cost of agricultural production worldwide**. Food, energy security and climate change worldwide are closely interconnected. Without access to energy, it will not be possible to feed the world in the future. Agriculture and the broader food system are both producers and consumers of energy. Currently, the whole agri-food system accounts for around 30 per cent of the world’s total energy consumption, and more than 70 per cent of this use occurs beyond the farm gate. Greenhouse gas emissions from the entire food chain, including landfill gas produced from food waste, account for approximately 20 per cent of total greenhouse gas emissions. Most of the additional food production needed to feed the world in 2050 will have to come from agricultural intensification, which means increased energy consumption and greenhouse gas emissions. Given that fossil fuel resources are decreasing and the cost of fossil fuels is increasing, this pathway will likely be unaffordable for the majority of farmers in developing countries, thus constraining agricultural production and ultimately threatening food security. As a result, due consideration to future agriculture development is crucial. In particular, the agri-food chain will have to become less dependent on fossil fuels so that it can deliver more food with less and cleaner energy.

### **What needs to be done?**

Sustainable development is not just about the planet – that is, protecting our natural environment – but also about people. From that angle, a first consideration should be to recognize food security and good nutrition as a cornerstone of sustainable development. Without them, humans cannot live, learn, prosper and lead healthy and productive lives, and societies cannot achieve their aspirations for innovation, growth and social stability. From the trends, it should be clear that achieving food security is about much more than simply increasing productivity. It is also about: creating better opportunities for people to access food to deal with the problem of hunger; reducing food waste and losses along inefficient value chains; and encouraging more nutritious diets and sustainable consumption patterns to deal with the growing problems of over-nutrition and obesity. But it is also about making food production more environmentally sustainable. Our current food systems were shaped to a considerable extent by the so-called green revolution of the 1960s and 1970s. This pushed up agricultural yields, but also increased the use of water and

environmentally harmful chemical fertilizers and pesticides. Continuing along this path will push us beyond environmental limits.

Hence, the second consideration is that we now need a truly green revolution in agriculture so as to reduce the use of chemical inputs, make more efficient use of energy, water and natural resources, and reduce food losses and waste through improved storage facilities and distribution networks. This new green revolution is possible, and we already have an extensive menu of green technologies and sustainable agricultural practices at our disposal. FAO's "save and grow" paradigm brings these together. "Save and grow" practices such as low-tillage farming, water-efficient cropping and ecology-friendly pest management have been successfully applied to a range of crops such as rice, cassava, and other basic staple crops. The challenge is to transform existing agriculture and make both large-scale and small-scale farming adopt these techniques and practices. Existing incentives for agricultural investment will have to be shifted in that direction.

The third consideration is about people. Technological transformation will need to apply to all of agriculture, but smallholder farmers will have to be the primary drivers. In Africa and Asia, where hunger is most pervasive, smallholder farmers cultivate about 80 per cent of arable land and produce most of the world's food. Improving smallholder farm productivity in a sustainable way has the potential to simultaneously improve food security, improve access to food through higher incomes of the rural poor, and prevent environmental degradation. But achieving such a benign outcome will not be easy. Not all small-scale farming is viable, and some economies of scale will need to be created, such as through farmer organizations and cooperative management of input purchases, financial services, environmental services and food processing. Better conditions will need to be created for female producers in agriculture who typically have more limited access to resources. Closing such gender gaps has been found to have positive effects on farm productivity and the nutritional status of children. Junior Farmer Field and Life Schools, which FAO is promoting, are helping counteract the trend of an ageing farmer population, and allow youth to earn a reasonable rural livelihood. Extending social protection to rural areas helps put more food on the table in poor rural households, while also helping farmers to better cope with risks, and to invest in their farms and the education of their children.

All this is not to sketch an overly romantic view of small-scale farming, or that all rural people should stay in agriculture or even in rural areas. For balanced and sustainable economic development, it is important to diversify economic activities, both along the agricultural value chain and into rural services. This can also help avoid further fragmentation of agricultural production and pressure on land and other natural resources because of rural population growth. In short, the fourth consideration is that we need broader rural and urban development policies for sustainable agriculture to work.

The fifth and final consideration of relevance is that rural economic diversification needs to build on strengthened rural-urban linkages. More specifically, small and medium-sized market towns and cities are extremely important to the economic activities of rural households. They provide the economic space for rural households to purchase their inputs and household items, as well as to sell their final products at local markets, thereby linking rural producers to the national and global economy. Small towns can also serve as a stepping-stone or an end point for rural residents seeking opportunities outside of the agricultural sector by absorbing some of rural labour surplus, thereby alleviating the pressure put on already congested, energy-intensive

metropolitan centres, while at the same time contributing to the growth of the national economy and the transformation of agriculture.

Rural-urban linkages are dynamic and changes to urban areas modify the access that people have to land and how they can use it, and they affect that land's role as a factor of production and its environmental conditions. The sustainable development of urban areas, along with their rural environs, require that competing demands for social, economic and environmental uses of land are dealt with in an integrated manner. *The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security* provide a framework of internationally agreed principles and practices on tenure that can be used by governments, civil society and the private sector when developing and implementing their policies and programmes. These Guidelines are the first global instrument to address tenure, and were developed through intergovernmental negotiations with the participation of civil society and the private sector.

For these considerations, the concept of city region food systems<sup>1</sup> is gaining traction among various stakeholders, including local governments and civil society organizations, to address the interconnected nature of a city and the surrounding areas that need to be taken into account for economically, environmentally and socially sustainable development.

Developing sustainable cities can also contribute to sustainable food security. An inspiring example is Belo Horizonte in Brazil, which supports local farms just outside the city as part of integrated urban and rural territorial planning. Rural farms that were once struggling to make ends meet now thrive, and are directly connected to consumers in the city. The government provides incentives for farms to use organic production methods, and also offers farmers access to public spaces throughout the city to set up market stands where they sell their produce directly to consumers. By eliminating the wholesale middlemen, farm profits are higher and consumer costs are lower. Meanwhile, the urban poor can better access food through the social protection and sustainable food security programmes managed by the municipality of Belo Horizonte.

Agricultural production should also be pursued in cities themselves. Green jobs in sustainable urban and peri-urban agriculture (UPA) and post-harvest value chains represent an increasingly attractive employment option for youth and women in urban areas. The needs are there in the cities, so with proper policy support, this can create employment opportunities and also contribute to improving food and nutrition security in urban areas. UPA, including urban forestry and urban aquaculture, can also be used to improve landscape and watershed management in cities and protect resources that are important for urban populations, such as the water supply. While there is undoubtedly competition for land and water use among consumers, industry and agriculture, recent efforts such as grey water recycling and organic waste recycling may provide a more sustainable solution.

None of this is going to be easy to achieve, as it will require profound changes in the ways we produce, eat and use food. These changes will require new policies at the local, national and

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<sup>1</sup> "City region food systems" was defined in a December 2013 consultation convened by FAO as "*the complex relation of actors, relations and processes related to food production, processing, marketing, and consumption in a given geographical region that includes one main or smaller urban centres and surrounding peri-urban and rural areas that exchange people, goods and services across the urban rural continuum*"

international levels. The key point is that there are sustainable solutions to food security. These solutions will also provide the foundation for sustainable urban development, as much as sustainable urban growth can contribute to food security.