Outline

Food security in an urban setting

Closing the food gap: production to consumption

Transforming food systems: rural - urban linkages
Food security in an urban setting

Photo by Min An from Pexels: https://www.pexels.com/photo/blur-business-dark-epicure-920570/
First, what is food security?

The definition has evolved and has become more complex over the last 50 years.

“Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

Source: The State of Food and Agriculture, 2016
Food and Agriculture Organization of the United Nations

From this definition, food security has multiple dimensions

If food is **available**, **accessible** and **usable**, and if all of these are **stable** then food security is achieved.

If any one of these is not met then the result is **food insecurity**.

Food insecurity is greatest in Sub-Saharan Africa, South and Southeast Asia → focus regions for this talk.

**How do these dimensions relate to urban settings?**

Graphic: [http://www.foodandenvironment.com/2013/01/basic-concept-of-food-security.html](http://www.foodandenvironment.com/2013/01/basic-concept-of-food-security.html)
We can see these dimension in urban food security

*Exposure to shocks [stability & availability]*
Informal job markets mean low and irregular income (chronic food shortages)
Reliance on markets means vulnerability to price shocks (acute food shortages)

*Diverse foods [economic access]*
Frozen/refrigerated, enhanced shelf life, ready made and street food

*Diverse sources [physical access]*
Supermarkets, convenience stores, markets, restaurants & street vendors

*Consumption of foods high in fat, salt and sugar [utilization]*
Related to access, cost, marketing of “junk food” & convenience

*Food safety [utilization]*
Long supply chains means more risks of contamination
Poor sanitation and living conditions can spoil purchased food

Derived from Table 9 (page 64) Asia and the Pacific Regional Overview of Food Security and Nutrition 2018 – Accelerating progress towards the SDGs. FAO. Bangkok.
Challenges for future urban food security

*Climate change [stability]*
→ price shocks due to more frequent “extreme weather” impacts on production

*Rapid urbanization rates in Africa and Asia [availability & access]*
→ increased demand for affordable food and the infrastructure to store/provide it

*Growth in the middle class [availability]*
→ increased demand for meat and dairy products that is not sustainable

*Increased consumption of highly processed and micronutrient-poor foods [utilization]*
→ malnutrition and knock on effects in health, development and the economy

*Food safety [utilization]*
→ limited resources to manage and monitor food chains and food businesses

“If not well managed, urbanization can lead to dysfunctional food systems” FAO, 2018

*Sources* www.iied.org/urban-food-security-consumption and FAO. 2018. Asia and the Pacific Regional Overview of Food Security and Nutrition 2018 – Accelerating progress towards the SDGs. FAO. Bangkok.
Closing the food gap

**Now** 7.6 billion people, 55% urban (4.2 billion)

**2050** 10 billion people, 68% urban (6.8 billion)

Increased population and trends in consumption patterns mean that by 2050 we will need to produce **70%** more calories than we do now.

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**Sources**
Can we close the gap with increased production?

Increase the amount of land

- We’ve expanded agricultural land by 500m hectares since 1960 (100 x NL).
- Expansion of agricultural land is the primary cause of ecosystem degradation
- Conversion of forests, savannas and peatlands contributes to GHG emissions
- There are limited opportunities for further expansion of productive land

Increase the production (yield) on existing land/water

- We would need to increase yields by 32% more than we did in the last 40 years
- 90% of fisheries are already fully or overexploited
- Resource limitations and climate change will depress yields in many regions
- Increased productivity is possible (improved management & technology)

It is highly unlikely that we can close the food gap via increased production alone.

Source: Creating a sustainable food future: A menu of solutions to sustainably feed more than 9 billion people by 2050. WRI report.
Can we close the gap with changes in consumption?

How is food used now?
- About 30% of our food is lost or wasted between the farm and the fork
- Edible crops are inefficiently converted into biofuel
- Edible crops are converted to animal based foods. Some are efficient, others less so
- The consumption of beef, which is the least efficient, is increasing (80% by 2050)
- There are more people who overconsume than those who consume too little

In general, as a person becomes more wealthy (and as nations develop)
- food consumption increases
- food waste increases
- the consumption of resource-intensive food increases

It is highly unlikely that we can close the food gap via changes in consumption alone.

Source: Creating a sustainable food future: A menu of solutions to sustainably feed more than 9 billion people by 2050. WRI report.
Where are the problems?

The production problems are largely in rural areas. The biggest gaps between actual and potential production are in developing countries.

The consumption problems are largely related to demands from urban areas. The demand from cities in developing countries is approaching the demand from cities in developed countries.

We need solutions that:
- increase food production on existing land/water
- reduce the environmental impacts of food production
- reduce the growth in food consumption
- have benefits for social and economic development in urban and rural settings

A menu of solutions that are implemented coherently

Source: Creating a sustainable food future: A menu of solutions to sustainably feed more than 9 billion people by 2050. WRI report.
A menu of solutions is needed to close the gap

An illustration of how different solutions can combine to close the global food gap

Implementing these solutions amounts to a transformation of food systems. This will require integrated development and planning across rural and urban settings.

Adapted from Fig 5 of “Creating a sustainable food future: A menu of solutions to sustainably feed more than 9 billion people by 2050”. WRI report.
Transforming food systems: stronger rural - urban linkages
Achieving food security means transforming these food systems: changing what we produce, how we produce it and how it is packaged and delivered to consumers etc.

Source: FAO. The state of Food and Agriculture 2017: Leveraging food systems for inclusive rural transformation
Connected actions to transform food systems

1. Facilitate access to productive resources, finance and services
2. Connect smallholders to markets
3. Encourage diversification of production and income
4. Build producers’ knowledge and develop their capacities
5. Enhance soil health and restore land
6. Protect water and manage scarcity
7. Mainstream biodiversity conservation and protect ecosystem functions
8. Reduce losses, encourage reuse and recycle, and promote sustainable consumption
9. Empower people and fight inequalities
10. Promote secure tenure rights
11. Use social protection tools to enhance productivity and income
12. Improve nutrition and promote balanced diets
13. Prevent and protect against shocks: enhance resilience
14. Prepare for and respond to shocks
15. Address and adapt to climate change
16. Strengthen ecosystem resilience
17. Enhance policy dialogue and coordination
18. Strengthen innovation systems
19. Adapt and improve investment and finance
20. Strengthen the enabling environment and reform the institutional framework

Source: FAO, 2018. Transforming food and agriculture to achieve the SDGs
Spatial patterns of transformation

Urban markets are the dominant force in developing regions, and local markets are the most important for most smallholders in Africa and Asia.

If coherent food policies are implemented that support changes in both production and consumption then these markets can have a positive influence on the food system

• improved supply chains
• sustainable intensification
• stronger economic links between cities and their surrounding areas

The spatial networks of markets in small towns, cities and mega-agglomerations will drive food system transformations in different ways

What will the landscapes around our cities look like as different transformations take place?
Different transformation pathways

With colleagues in FAO, we’ve started to look at simple indicators – like the rural-urban spectrum that show where different types of transformations are likely to take place.

The sizes of towns and the distances between rural areas and urban centres are key aspects of these rural transformation pathways:

- infrastructure investments
- labour availability
- market development

Source: FAO. The state of Food and Agriculture 2017: Leveraging food systems for inclusive rural transformation
In developing regions, the share of people living in or around small cities and towns is higher than the share of people living in or around larger cities.

Source: FAO. The state of Food and Agriculture 2017
The spatial transformation of food systems

We have a new tenure track position open at ITC to explore how and where food systems can be transformed to become more sustainable and meet future demands.

Assessing how these systems can adapt to meet growing and diversifying urban demand is key to increasing sustainable production and building resilience to shocks.

Part of a larger research program DeSIRE to build resilience in different systems.
Transforming food systems: rural-urban linkages

Improving food security in both urban and rural settings depends on: sustainable production, storage, transportation, processing and marketing of food.

It needs coordinated food policies across the rural-urban spectrum.

This means stronger linkages between urban areas and their surrounding areas.

Achieving this requires transforming different food systems in different ways.

We need to better understand what our future food systems will look like:
- what transformations will lead to sustainable and resilient food systems
- where these transformations should take place
- what the impacts and benefits will be
References and sources used in this presentation

**FAO. 2016.** *The State of Food and Agriculture, 2016: Climate change, agriculture and food security.*

**FAO. 2017.** *The state of Food and Agriculture, 2017: Leveraging food systems for inclusive rural transformation.*

**FAO. 2018.** *Asia and the Pacific Regional Overview of Food Security and Nutrition 2018 – Accelerating progress towards the SDGs.*

**FAO. 2018.** *Transforming food and agriculture to achieve the SDGs: 20 interconnected actions to guide decision makers.*

**IIED. 2018.** *Urban food security and consumption.*

**WRI. 2013.** *Creating a sustainable food future: A menu of solutions to sustainably feed more than 9 billion people by 2050.*

Further reading

**Cabannes Y. and Marocchino C. 2018.** *Integrating Food into Urban Planning.*

**IAP. 2018.** *Opportunities for future research and innovation on food and nutrition security and agriculture: The InterAcademy Partnership's global perspective.*