# FOODMETRES Innovation Brief

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## FOOD CHAIN INNOVATION IN METROPOLITAN REGIONS

The European Sustainable Development Strategy (CEC 2006, CEC 2009) addresses a broad range of 'unsustainable trends' ranging from public health, poverty and social exclusion to climate change, energy use and management of natural resources. A key objective of the SDS is to promote development that does not exceed ecosystem carrying capacity and to decouple economic growth from negative environmental impacts. A report commissioned by the European Commission (CEC 2008) came to the conclusion that the Ecological Footprint approach should be used by EU institutions within the Sustainable Development Indicators (SDI) framework. In this context, The FOODMETRES project (www.foodmetres.eu) seeks to contribute with spatial and functional assessment tools that are responsive to the dynamic nature of urban development trends and which can guide food chain planning and innovation at the level of metropolitan regions.

## Introduction

Recognizing that food production and consumption is not only linked via one-directional food chains in terms of processing and logistic pathways, but also part of cross-sectoral and hence multi-directional *value chains* associated with bio-economy, FOODMETRES has explored the role of metropolitan agriculture as a driver of system innovation. In practical terms this has meant that the FOODMETRES approach is rooted in both European as well as regional data supply, allowing cross-scale assessments at different resolutions. Central to these efforts has been the attention to different types of food chain innovation, namely product, process, governance and various social forms of innovation (see Figure 2).

As global hotspots for trade, transport and tourism, metropolitan regions hold extremely high stakes in food logistics, safety and quality. At the same time they are places where local, regional and global agro-food processes have a great potential for generating synergy. Therefore, metropolitan regions can be considered as being privileged for agro-food system innovation.

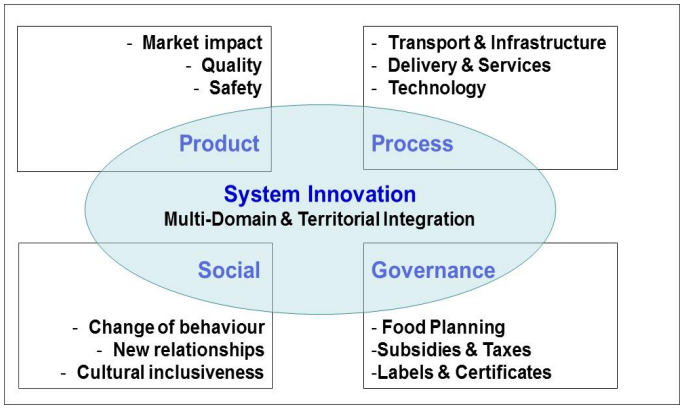


Figure 2: ***Different system innovation dimension relevant for sustainable food chains***

It is hence not surprising that Dutch researchers and policy makers have coined the notion – if not the vision – of a Metropolitan Agro-Food System (MAS) as "*a deliberately designed system of intelligently connected production sites that uses the available resources, conditions and infrastructure in metropolitan areas to produce material and immaterial demands for the same metropolitan area* "(van Latesteijn 2008). The latter suggests nothing less than to fundamentally rethink and redesign the agricultural value chain with the goal of establishing a more resilient link between food security and food safety at the level of metropolitan regions. Such an approach needs to adhere to the following principles:

(1) spatial-functional entities with boundaries which are determined by system integration at the production

level thereby defining what constitutes a metropolitan area;

(2) sustainable principles, among them the limitation of agriculture's ecological footprint by improved use of resources, conditions and infrastructure that are available in the area of demand;

(3) a multifunctional approach by covering society's material as well as immaterial demands (commodity and non-commodity goods and services).

Translating this vision of modern metropolitan agriculture into a spatially explicit planning concept for food security requires a more dynamic approach that is based on multi-functionality, evidence-based planning principles and multi-actor governance – assets yet to be incorporated into many European and national policies.

## Approach and Results

Focussing on the spatial dimension of metropolitan regions, FOODMETRES puts forward three footprint assessment tools allowing stakeholders from agro-food business, governance and civil society organisations to enter a knowledge-driven debate on sustainable and innovative food chain planning:

- **The Metropolitan Economic Balance Assessment (MEBA)** tool applies an economic approach to assess the food demand-supply balance within a metropolitan region;
- **The Metropolitan Area Profile and Scenario (MAPS)** tool adopts a straightforward data-driven approach to applying different food production regimes (e.g. organic farming, food loss) and consumption patterns (e.g. vegetarian, healthy diets) or population scenarios; and
- **The Metropolitan Foodscape Planner (MFP)** allowing stakeholders to re-allocate up to 10 commodities on the basis of landscape-ecological principles while measuring the ecological footprint effects at the scale of 1 hectare-grids.

The results demonstrate that quantitative assessments can provide important contributions to a wider societal debate on the characteristics and effectiveness of Metropolitan Agro-Food Systems (MAS).

## Conclusions

Re-interpreting the Thünen model we have demonstrated that data on regional food supply potentials can help to frame the dynamics of metropolitan regions in the light of spatial planning, rural development objectives and food chain innovation. The results are considered as valuable references for the emerging discipline of sustainable food planning as a young branch at the very interface between social and environmental sciences.

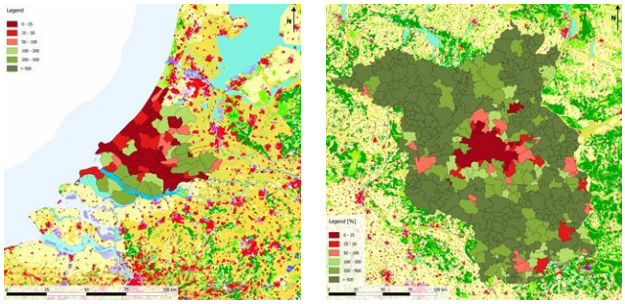

***Figure 3: Metropolitan Area Profile (MFP) tool output for Rotterdam and Berlin (Zasada 2015)***

## Recommendations

- Integrate the notion of metropolitan regions into Rural Development programmes and funding schemes. It is crucial to achieve a common understanding on how metropolitan regions are triggers for sustainable development in rural regions, and that funding instruments and rules require appropriate consideration in territorial eligibility settings.
- Provide incentives and financial support for the agro-food sector where system innovation including aspects of governance and social embedding are properly addressed at the level of metropolitan food sheds.
- Establish European Cross-border Partnerships between policy makers, spatial planners and entrepreneurs to share experiences and to build up cross-border food shed activities for metropolitan regions.
- Make RIS 3 (Regional Innovation Strategies of Smart Specialization) an approach to develop metropolitan innovation strategies targeting at *Agrofood clusters* that act as technological, infrastructural and economical hubs.
- Use footprint assessment tools in knowledge brokerage session to raise the awareness regarding impacts of urban food consumption;
- Monitor and report on innovation impacts on the ecological footprints at the level of metropolitan regions metropolitan regions at a regular base.