Exploring urban regions' food self-sufficiency

Calls for more local food are not usually associated with a robust and quantified assessment regarding their feasibility. This is why two teams of researchers asked themselves the following question: **is it feasible to source all the food a city needs from its surroundings?**

The two articles they wrote bring very valuable insights. The first one was produced by a group of researchers led by the Leibniz Centre for Agricultural Landscape Research (ZALF) as part of the European Project FOODMETRES. It takes London, Milan, Rotterdam and Berlin as case studies. The second, published in *Ernährungs Umschau*, focuses on Berlin. The methodology they present can be used by any urban region to assess its existing level of food self-sufficiency and the way this would evolve under different policy options.

Calculating food demand, comparing it to available land

Both articles rely on a logic that is straightforward enough:

- First, they calculate the food demand per capita arising from urban areas. In order to do that, they look at the food that is consumed, but also at the one that is wasted at all stages of the food chains.
- Second, they look at existing data on farmland in the urban region.
- Third, they establish a quick "land supply" over "land demand" ratio (for a specific commodity, or for all food items). If this ratio is 1, then the supply perfectly meets the demand. But, more often than not, the ratio is not 1. **When the overall ratio is less than 1, the urban region is not self-sufficient**.

According to the FOOODMETRES study, neither London, Milan nor Rotterdam are currently self-sufficient in food. For instance, an urban area like London requires 42 000 km^2 of land, but only has 26 500 km^2 of farmland available in the surrounding region.

The metropolitan region of Berlin-Brandenburg, on the contrary, shows a good overall level of potential food self-sufficiency. The urban region is quite different from the others, as it has a large urban core with smaller cities around, and a lot of agricultural land, hence making it possible to grow food. The team that authored the Berlin paper went further by looking in more details at specific commodities and actual self-sufficiency. For that reason, their results are a little less optimistic: the level of self-sufficiency for vegetables, for instance, is only 22%.

Is self-sufficiency an achievable goal?

The FOODMETRES team then moved on to reflecting on whether self-sufficiency was an achievable goal. In order to do that, they established scenarios that played on factors that correspond to current policy objectives: the conversion to organic farming, a shift in diets, or a reduction of food waste. They also introduced in some of their scenario an analysis of what food demand will look like in 2050 if urban population growth happens as expected in existing projections.

At this point, one needs to acknowledge that **there will always been a share of food that cannot be grown domestically, unless, of course, every city dweller is happy to live without coffee or chocolate…** In a sense, a full sufficiency is therefore not achievable, nor does it seem suitable or desirable.

So, non domestic food apart, under which scenarios would sufficiency be achievable?

The researchers found that **none of the policy levers, even if pushed to their extreme, would enable cities like London, Milan or Rotterdam to become self-sufficient**. For instance, in London, totally eradicating food losses would "only" decrease the land required by 24%, when existing needs exceed land supply by around 60%. A full conversion to organic farming would also increase the area of land needed to meet the demand, but in combination with a strong stance on food waste, it would keep needs equal to what they are today.

The results also make very salient the fact that **existing population growth projections hardly fit with a food self-sufficiency agenda…** Indeed, for a city like London, it would add a further 13 000 km^2 to land demand, when it already exceeds supply by around 60%. This raises interesting questions on potential contradictions between urban food policies advocating for more local food, and other policies pushing for urban housing development. This is consistent with the fact that, historically, cities have always tried to diversify their food supply, in order to liberate themselves from the potentially insufficient supply of surrounding regions.

For Milan and Rotterdam, the research highlighted that pursuing a self-sufficiency agenda could actually be a problem as their foodshed, i.e. the area of land that they would need to meet their demand, would compete with that of neighboring cities.

Scenario modelling can help cities get realistic about their policy goals

According to both Susanna Esther Hönle and Ingo Zasada, lead authors of the articles, there is great scope to improve the models used in the studies. For instance, they could investigate in more details whether land is actually available to grow food (as some land uses such as grassland are protected and cannot be turned into agricultural land). Or they could factor in potential climate change impacts, or the availability of critical resources such as water.

However, these models can already be used by cities to be more realistic about their policy goals. Urban policy makers can also compare policy scenarios that act on different levers (fighting food waste, shifting diets…). And, above all, **such models compel cities to look at both food demand and supply at the same time, and to ensure the sustainability of the food system as a whole.**

The FOODMETRES Project

The FP7 project 'Food Planning and Innovation for Sustainable Metropolitan Regions' FOODMETRES) thrives to assess both the environmental and the socio-economic impacts of food chains with regard to spatial, logistical and resource dimension of growing food as well as food planning and governance.

The main goals are:

- Identify opportunities for food chain innovation at both the local-regional as well the large-scale metropolitan level;
- Assess the economic, environmental and social impacts of food chain systems by means of ecological footprint and product life cycle analysis;
- Study and compare technical, logistical, organisational and governance aspects of innovative food chain systems in selected case studies in Europe and Africa.
- Develop and provide scenario modelling and impact assessment tools in support of stakeholder interaction and policy making;

- Apply knowledge brokerage techniques to speed up innovation and innovation exchange within the case studies.

More at: http://www.foodmetres.eu/

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Source

Hönle S, Meier T, Christen O (2017) Land use and regional supply capacities of urban food patterns: Berlin as an example. Ernährungs Umschau 64(1):11-19

Zasada, I., Schmutz, U., Wascher, D., Kneafsey, M., Corsi, S., Mazzocchi, C., ... & Piorr, A. (2017). Food beyond the city–Analysing foodsheds and self-sufficiency for different food system scenarios in European metropolitan regions. *City, Culture and Society*.

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You can find this article on the URL below:

http://www.urbanfoodfutures.com/self-sufficiency