

School of Civil Engineering Research project web page

PhD topic: Sustainability and resilience assessment framework of food systems in cities

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Dates: February 2014 – February 2017

About the project

Food systems have been studied through conceptual models (Ericksen, 2008) that consider the interactions between food system activities (production, manufacturing, distribution, retail, consumption and waste) and the physical and social environment to which they belong, and define as food systems outcomes the different implications of food security as expressed by the Food and Agriculture Organization of the United Nations (1996) "(...) when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". As regards sustainability assessment frameworks, a fair amount of literature can be found which is primarily related to cities, infrastructure and processes (including those for food production). However no sustainability assessment framework has been found that scales down from the global picture of the city, and focuses on the food flows that cross it, their origin and final disposal.

This research project is focused on the sustainability and resilience of food supply systems (therefore on food security) within the context of the water, energy and food nexus. Of crucial interest for this research is the additional stress that an increase in demand for food provision, driven by an increasing global and in particular urban population, will put on natural resources such as water, land and fossil fuels. The relationship between cities and the food system is therefore central through the study of what has been defined the "underlying paradox of urban civilization" (Steel, 2008) represented by the disconnection between city dwellers and food.

The aim of the project is to develop a methodology to assess the environmental and social costs of food consumption in cities in order to propose and test solutions that involve a more efficient use of resources and can foster food security. Furthermore, with the purpose of testing the resilience of a city's food system, a set of future scenarios will be developed and the same framework will be used to test how the environmental impacts and the food security outcomes change in each scenario.

References

Ericksen, P.J. (2008) Conceptualizing food systems for global environmental change research. **Global Environmental Change**, 18: (1): 234-245.

FAO (1996) "Rome Declaration on World Food Security and World Food Summit Plan of Action". Rome, FAO.

Steel, C. (2008) **Hungry City - How food shapes our lives**. London: Vintage

Acknowledgements

Part of the Liveable Cities programme (www.liveablecities.org) founded by the Engineering and Physical Sciences Research Council EPSRC.