

Research Project: Sustainable Food Systems – Bioeconomy and Ecoeconomy.

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Background:

How more sustainable consumption and production systems are to be created is one of the most fundamental questions that the BRASS research agenda addresses. This project sought to explore the implications of two emerging and competing paradigms to achieve progress towards sustainability through ecological modernisation. The bio-economic paradigm asserts the role and value of technological innovation in capturing the latent value in biological processes and renewable bio-resources to produce improved health and sustainable growth and development. It covers a range of activities including biotechnology, genomics, chemical engineering and enzyme technology, and is experiencing significant growth across many regions in Europe. An alternative approach is that of the eco-economy paradigm. This approach is an alternative, more diverse and fragmented arena for the development of new production and consumption chains and networks. It places an emphasis upon the recalibration of micro-economic behaviour and practices that, added together, can potentially realign production-consumption chains and capture local and regional value between rural and urban spaces. The eco-economy model thus involves the rise of complex networks or webs of viable businesses (many of them small and medium sized new businesses) and economic activities that utilise ecological resources in more sustainable and ecologically efficient ways (e.g. new renewable energy firms, agri-tourism, food processing and catering, and an array of social enterprises). This project has sought to explore the implications of these two sustainable development paradigms for the future of the economy, particularly with reference to food production and rural economies. This work also has a strong connection to the work on food hubs (see A5).

Aims & objectives:

- To explore the different trajectories of, and dynamics of competition between, these paradigms;
- To understand the implications of each for the potential drivers of change in corporate and competitive strategies between firms, and in market and spatial development between and within places.
- To analyse the policy implications of explicit or implicit choices between these two competing paradigms within regional and rural economies and for the range of ecological goods and services that they provide.
- To explore the potential of these paradigms to contribute to the creation of more sustainable communities and more sustainable businesses within them.

About the research:

Much of this research project has involved theoretical developments based around the concepts of the bio-economy and the eco-economy and the interaction between them together with policy analysis of their potential implications. There has also been work examining particular regions and the application of eco-economy approaches in particular including work in Devon and Shetland, with Canadian partners based around the City of Toronto and case study work in China.

Results and outputs:

This work has demonstrated the potential for new re-localised hubs, clusters and networks within an eco-economy to be created as part of new sustainable infrastructures in towns and cities, and in rural locations. It has also connected to BRASS research on sustainable communities (A27) to demonstrate the importance of skills and learning in facilitating a transition towards a more sustainable eco-economy. One key result from studying the emergence of regional eco-economies is

a new conceptual model called the *rural web*. These webs are embedded into the fabric of regional systems of production and consumption and provide a key driver for both rural development generally and eco-economic development more specifically. Relocalized agri-food networks are playing a key integrating role in mobilizing the web and the regional eco-economy more generally. The web concept is used to (i) assess the pathways and drivers of eco-economic initiatives, (ii) provide a way of embedding agri-food initiatives in their innate forms of multifunctionality with wider ecological goods and services and (iii) provide a valuable and multidimensional tool for comparative rural/regional analysis and pathways of eco-economic development.

The work in China revealed a new model of the localised eco-economy based upon a cluster of complementary production and consumption spheres: settlement infrastructure developments, renewable energy and recycling, bamboo clusters, food clusters and ecological tourism (Non Jia Le). The analysis suggests that concepts such as eco-economy, and their associated and unfolding dynamic rural and urban 'webs', are applicable in the case of Chinese environmental and economic development more generally; and that such processes could proliferate through careful and innovative plan-led processes which foster the re-appraisal of the endowments of regional and local resources.

- Kitchen, L. and Marsden, T. (2011), [Constructing sustainable communities: A theoretical exploration of the bio-economy and eco-economy paradigms](#), *Local Environment: The International Journal of Justice and Sustainability*, 16 (8), 753-769.
- Marsden, T. (2010), [Mobilising the regional eco-economy](#), *Cambridge Journal of Regions, Economy and Society*, 3 (2), 225-245.
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- Marsden, T., Yu, L., & Flynn, A. (2011), [Exploring the emerging rural eco-developments in China: The case of Anji Province](#), *Town Planning Review*, 82 (2), 195-225.
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Impacts achieved/potential for impact:

This work has been disseminated internationally in Europe and North America to combined academics/policy audiences, and the Ontario Ministry of Agriculture and the Social and Humanities Research Council for Canada have funded two engagement projects considering on new 'roadmaps' and pilot studies of best practice in building new local and regional food hubs. The new eco-economy model emerging in China has the potential for impact as a new form of rural and urban eco-development in China which could be replicated as part of progressing the '*New Countryside Movement*' there more generally. The Eco-economy concept also provides an important option for policymakers seeking to stimulate a more sustainable economy with a focus on industry structures, stakeholder relationships and demand factors rather than through a reliance on technology and innovation.