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Accelerating the Transition to Sustainable Production Systems

Cargo-bikes, Conviviality and Conscious Food: Creative Partnerships and the Circular Economy

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Key messages

- Conscious food networks are examples of circular economy systems and represent an opportunity to reduce the greenhouse gas emissions associated with food production.
- Innovative partnerships between urban social entrepreneurs and rural producers are essential to provide stability to conscious food networks.
- Using cargo-bikes to deliver goods (including local food) within cities can significantly reduce emissions and pollution while contributing to building strong, integrated communities.
- Delivering positive social impact or co-benefits should be acknowledged as a valuable metric to include when measuring the success of circular production and consumption models.

Introduction

Securing access to healthy food produced in a manner that does not exploit nature or humans is an integral step in mitigating climate change and increasing wellbeing. Food production, processing and distribution account for about one-quarter of global greenhouse gas emissions.[1] Production is the most emissions-intensive stage of agriculture, with around 80 per cent of emissions attributable to livestock rearing and petrochemical use. The post-production stages also contribute significantly to the emissions footprint, with retail and transportation accounting for 10 per cent of emissions.[2] Complex and distant food chains add to the alarming amount of food waste, which equates to roughly one-third of global annual food production.[3]

A growing body of research has identified food networks promoting proximity, equity, transparency and prudent use of human and natural resources.[4] It documents a wave of agriculturalists following human-powered, petrochemical-free and closed-loop production, working with citizens to establish mutually supportive alternative food systems. These circular economy models, when applied to food systems, describe networks that maintain regenerative processes for distributing food in a fair and sustainable way, while supporting local economies and solutions based on community needs, resources and capacities.[5]

This *Insight* presents a case study on Cargonomia,[6] an example of a sustainable food production and distribution system located in Budapest, Hungary. The case was identified

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by the Central European University and Foundation for Small Enterprise Economic Development as a model of the application of circular economy principles at the micro level. This paper discusses the lessons learned, enablers and challenges facing Cargonomia, as well as new partnership models designed to mitigate climate change and deliver other co-benefits, with the aim to encourage replication of similar conscious food initiatives.

The Cargonomia partnership

Cargonomia consists of a cargo-bike messenger service, a bicycle-building cooperative, a family-scale organic vegetable farm, an organic bakery, a wine distributor and citizen volunteers. Taking a multifaceted approach, the cooperative offers solutions that reduce the environmental impact of food production and distribution. It promotes and markets organic agriculture and increases access to seasonal fruits and vegetables, supplying more than 3,000 food boxes per year. It also uses proximate, low-waste, bicycle-assisted distribution chains, with bicycle messengers covering nearly 18,000 km per year delivering goods within 27 km^2 of the city.

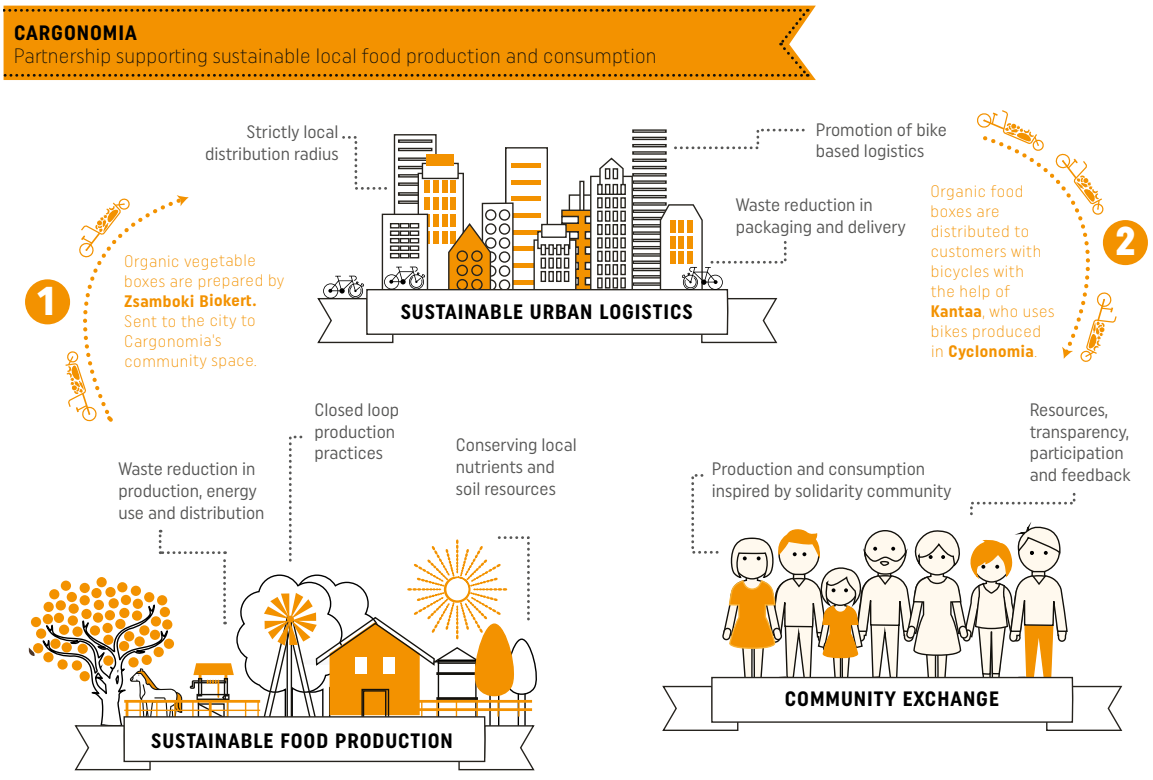
After three years working independently but interacting regularly, the partners came together in 2014 to develop a cooperative that did not require additional investment support. Most pre-partnership interactions took place while participating in local sustainable transition movement events. This partnership represents a crossover point of different activities – food production, urban bike logistics and community outreach (see Figure 1) – and is centred around a physical space that serves as the dispatching centre for messengers, a food box pickup point and a hub for hosting do-it-yourself repair workshops for bicycles, clothing and electronics. Each week the cooperative distributes organic food boxes containing fruits, vegetables, bread and wine to more than 300 families. The boxes can be picked up in person or delivered by bicycle within the inner districts of Budapest.

The model was developed with a focus on linking and streamlining existing services and infrastructure, including communication networks and operating space. The partnership supports the traditional business activities of its members while also enabling outreach activities to a wider audience. Regular events and workshops take place at the Cargonomia headquarters, on farms and, for more complex technical instruction, in the bicycle cooperative's workshop.

Enablers and challenges

Cargonomia has been successful due in no small part to the relative affordability and accessibility of a central operating space in Budapest, available due to the large number of unused properties. At the onset of the partnership, one unoccupied building in the population-dense centre of Budapest became the headquarters of Cargonomia,

Figure 1. The Cargonomia partnership



Source: Cargonomia

providing a central point for the bike messenger service with minimal financial implications.

Individually, the partners are responsible for offering competitively priced goods and services. Remaining price-competitive is the biggest obstacle to maintaining financial viability while operating as small-scale, local, de-mechanised enterprises. While each member of the partnership derives benefits from being part of Cargonomia, of particular importance is the pooling of infrastructure and human resources that provides greater stability than could be achieved if working individually. While the network contributes to the financial viability of the individual members, the partnership was inspired, not only by potential economic benefit, but also with the intention to empower collective outreach activities that would have a positive impact on the range of goods and services offered. The resilience of the partnership is reinforced through shared commitment to cooperative principles (see box).

To increase the effectiveness of the partnership, partners use horizontal decision making and communicate through an online platform as well as having contact in person on delivery days and in meetings. Customers order through a website and can provide feedback in person and online. Setting goals and addressing challenges collectively helps ensure that resources are used in a flexible and equitable manner. However, the partnership continues to navigate challenges as it develops. These relate to: a) maintaining efficient communication during peak production and service seasons; b) increasing impact without outgrowing the original vision or threatening the core principles of collaboration; and c) maintaining a non-profit partnership while surrounded by ongoing financial pressures.

Guiding cooperative principles

- **Fair exchange:** Prioritising social benefits and personal relationships
- **Relocalisation:** Proximity-based, transparent network
- **Solidarity:** Strengthening links between countryside and city
- **Empowerment:** Teaching practical skills through outreach and activating volunteers
- **Cross-disciplinary collaboration:** Links across different social backgrounds, ages and competencies
- **Open dialogue:** Creating space for debating and defining sustainable transition locally.

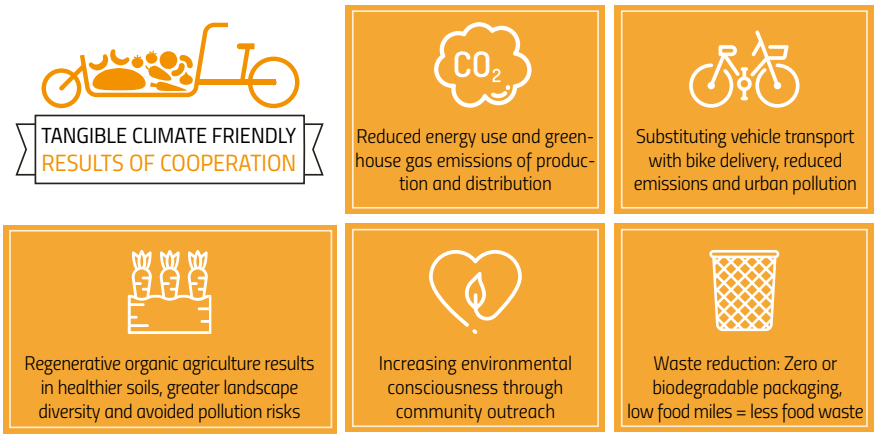
Climate benefits of circular food networks

Networks that increase access to organic, plant-based foods while using bicycles for delivery directly address two major emissions categories: agricultural production and transport, which together are responsible for around 40 per cent of global emissions[7] (see Figure 2). Bicycle transport in urban locations results in a more than tenfold decrease in CO_2 equivalent emissions per km travelled when compared with cars, without taking into account additional air quality and pedestrian safety benefits.[7] While research has documented the direct environmental benefits of organic agriculture from a global perspective, it remains difficult to quantify comparative emissions reductions at the micro level.[8] Despite this, it can be inferred that increasing access to organic plant-based products is a useful step towards reducing emissions related to food consumption.

Implications and guidance

While Cargonomia is representative of a functional local solution operating at a micro scale, the sustainability and social principles inherent within the partnership have the potential to be replicated city-wide for increased impact. The basic ingredients – food producers, messengers, bike-building cooperatives and engaged citizens – are present in nearly every city in Europe, and potential exists to create similar partnerships across the continent. Relatively flat, densely populated urban locations in temperate climates with peripheral agricultural areas located less than 50 km from urban centres are ideally suited to urban food–bike collaborations such as Cargonomia.

Figure 2. Cargonomia's climate friendly aspects



Source: Cargonomia

Small-scale operations have the potential to multiply when they can capitalise on local knowledge, relationships, creativity and shared visions co-created within a local community. Moreover, the replication possibilities of sustainable micro circular economies are greatly enhanced when local municipal actors welcome dialogue between citizens and decision makers, and integrate best practice examples into public policy.[9]

Conclusion

The main lesson learned from Cargonomia is that ecologically conscious, circular production models can be facilitated by cross-disciplinary partnerships guided by cooperative principles. The meshing of traditional farming methods and human-powered logistics helps to demonstrate that resource efficiency in circular production systems is not linked solely to advanced technology or growth-reliant economies of scale. Cargonomia illustrates that prioritising building relationships, direct interaction and the development of social capital can enable substantial emissions reductions while delivering important positive social impacts. Moreover, the circular nature of this model extends far beyond the prudent use of production resources to highlight reciprocal exchanges between producers and consumers, and the establishment of a participatory, interactive relationship.

This study illustrates why the positive social impacts or co-benefits associated with producing and marketing goods locally should be prioritised as a metric within sustainability assessments and included in circular economy discourse. The extended impacts of this localised food network are maximised within the community through regular activities offering participants open spaces for learning and exchange, thereby creating conditions for meaningful dialogue between neighbours, craftspeople and active volunteers.

This suggests that future circular economy research and policy should incorporate metrics related to the degree to which circular initiatives deliver co-benefits alongside climate change mitigation. In addition to the numerous indicators measuring the direct carbon benefits of low-tech, high-interaction chains such as Cargonomia, additional indicators could be developed and used to assess whether or not positive social co-benefits are being delivered. Such indicators could include distance between producers and consumers, the number of volunteers, community education opportunities, number of participants linked to the production system and the establishment of multifunctional communal spaces for marketing products.

Endnotes

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9. See the recent FP7 Accelerating and Rescaling Transitions for Sustainability (ARTS) project: http://acceleratingtransitions.eu/.

Climate Innovation Insights is a platform for reflection and discussion on the lessons, challenges and opportunities of addressing climate change through innovation. It brings together key insights, informed opinion, best practice and methodological approaches to understand how research, education, business and government can, together, accelerate the transition to a zero-carbon economy. The series is developed and published by Climate-KIC, Europe's largest public–private partnership focused on climate innovation. We would like to thank the Series Editor, Dr Geraldine Brennan and the two external reviewers, Dr Carmen Ruiz Puente and Dr Inês dos Santos Costa.

About Climate-KIC

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The Central European University (CEU) is an international postgraduate institution in the field of humanities and social sciences located in Budapest. The Foundation for Small Enterprise Economic Development (SEED) aims to promote the sustainable economy and equal opportunities by developing an ethical, conscious and effective entrepreneurial attitude in Hungary.

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