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Sustainable Food Systems in Northern Queensland

Abstract

This paper explores the development of sustainable food systems in Northern Queensland and draws conclusions as to how they can grow and become more stable in the future. It shows how a community is actively and creatively deploying local networks and local resources in order to gain access to locally-grown, sustainable food. The development of this alternative agri-food network (AAFN) is driven by grassroots movements and underpinned by a strong, not-for-profit sector consisting of environmentalists, community leaders and food activists, who are highly critical of the mainstream agri-food system. The opportunities and challenges faced by actors in alternative food systems are discussed. At federal government level, the adoption of intensive, productivist-based agriculture runs counter to the philosophy of AAFNs. In a political environment that clearly favours economic development, the issue for local communities is how can they influence food and agricultural policy?

Keywords

Sustainable food systems, organic, local, community well being

Cover Page Footnote

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Introduction

The themes of sustainability, food quality, safety and food security have become firmly embedded in the public discourse of government policy in Australia. In the National Food Plan *Our Food Our Future* (2012), it is acknowledged that the local food economy plays an important role in the Australian community along with the high-yield, export-oriented agricultural sector (DAFF, 2013). The Queensland Food Strategy, *Food for a Growing Economy*, (DEEDI, 2011) views food systems as fragile due to natural disasters, and highlights local food production as one way of building more resilient communities. While there is a great deal of research on demand-side factors, supply chain factors have been relatively under-explored in Australia. This paper presents a profile of sustainable food systems in North Queensland and draws some conclusions as to how sustainable food systems can expand and become more stable in the future.

Background data, research objectives and methodology

Academic literature on sustainable food networks or alternative agro-food networks has expanded rapidly (Renting, Marsden and Banks, 2003; Winter, 2003; Goodman, 2004; Maye et al., 2007; Cox et al., 2008; Selfa et al., 2008; Harris, 2009; Little et al., 2010). It is a concept which has come to symbolise quality, regional identity and environmental sustainability. Sustainable food networks are highly diverse and include community gardens, community-supported agriculture, community farms, organic produce, farmers markets, farm gate sales, box schemes and specialist retailers such as online grocers. However, farmers markets and the like offer limited opportunities for conventional producers transitioning to local food systems (Hinrichs, 2003). Localised food supply chains have been linked with rural development (Marsden and Sonnino, 2005), regional tourism development (Du Rand, Heath and Alberts, 2003), community development (Ikerd, 2002; Robinson, Robinson, Carpio and Hughes, 2009) and social capital building (Cocklin, 2005; Seyfang, 2006; Nelson, Knezevic and Landman, 2013).

Although there is a vast literature on sustainable food systems, the research from which this article stems was motivated by the perception of key shortfalls in the academic work to date. Much of the research on sustainable food systems has taken place in a European (Venn et al., 2006; Renting, Marsden and Banks, 2003) and North American context (Selfa and Quazi, 2005; Ballamingie and Walker, 2013; Stroink and Nelson, 2013; Nelson, Knezevic and Landman, 2013). Comprehensive data on sustainable food systems is lacking because these practises are so broadly defined (Goodman, 2004) and also because examples of

sustainable networks of food supply are highly localised, hidden and ephemeral in nature (Venn et al., 2006). It is argued that researchers must move beyond binary thinking and avoid false dichotomies between globalised and local food systems (Hinrichs, 2003; Winter, 2003; Albrecht et al., 2013) and that future research should focus on how sustainable agri-food systems can expand, become more stable and ‘feed the world’ (Marsden, 2012; Blay-Palmer et al., 2013).

Surprisingly little is known about whether sustainable food systems are being incorporated into community plans and regional development strategies in Australia. Australian studies have investigated the effectiveness of state effort in assisting both the infant organic sector (Halpin and Daugbjerg, 2008) and the peri-urban fruit and vegetable sector (Carey et al., 2011) and the usefulness of eco-certification for AAFNs expanding beyond direct marketing (Higgins, Dibden and Cocklin, 2008). Researchers have been highly critical of Australia’s engagement with productivist agriculture and its ramifications for natural resource and food security (Dibden and Cocklin, 2005; Bjorkhuag and Richards, 2008; Dibden, Gibbs and Cocklin, 2013; Lawrence, Richards and Lyons, 2013). While research on the factors influencing Australian consumers to buy organic food is well established (Pearson, Henryks and Jones, 2010), supply chain factors have been relatively under-explored. In response to gaps in the literature on sustainable food systems, this paper presents a study of North Queensland and takes a value chain approach by engaging with growers, distributors, consumers and government officials.

The objectives were:

- (1) To profile the rise of sustainable food systems in North Queensland and explore how, and why, local food networks have come into existence.
- (2) To examine their benefits and shortcomings and draw conclusions as to how sustainable food systems can expand and become more stable in the future.

Case Study Location

The characteristics of the case study region are outlined in the next section.

Agriculture makes an important contribution to Queensland’s economy. According to the 2011 Agricultural Census, the number of businesses undertaking agricultural activity in Queensland was 28,401. The gross value of total agricultural production to Queensland was \$9.5 billion (ABS, 2012). However, Australia is lagging behind many European countries in developing sustainable

agriculture (Pillariseti, 2002). The estimated number of certified organic operators in Queensland was just 634 and the organic sector was valued at \$139m in 2011 (BFA, 2012). Lack of scale has been identified as one barrier to the growth of organic farming in Far North Queensland (Advance Cairns, 2010). Far North Queensland has the richest and most diverse agricultural areas in the state. Sugar-cane growing and banana production dominates coastal areas. Dairying is a major farming activity on the tablelands. Primary agricultural products are vegetables, tropical fruits and beef. A key objective is to maintain a profitable and sustainable agricultural sector in rural areas. The *Tropical North Queensland Regional Economic Plan* (2011) has highlighted the importance of demand creation for local food and the role of agriculture in securing food security, sustainability and lifestyle appeal (Advance Cairns, 2011).

Sustainable food systems have emerged in the case study region, and cover 'veggie box' schemes, farmers' markets, community gardens, producer cooperatives, community-assisted agriculture (i.e. partnerships between farmers and consumers), online grocers and specialist retailers. *Real Food Network* is a subscription-based, fruit and vegetable box delivery scheme. It was founded four years ago and is an example of Community Supported Agriculture¹ (CSA). The founder works with 86 local farming families, buys produce from them at a fair price and then delivers it to their customers. *Cooktown Food Connect* consists of a network of small farmers and gardeners, who produce chemical-free food for people in the Cooktown region. The farmers live within a one hour radius of Cooktown and they are paid a fair price for their work and are required to grow to organic standards. *Food for Thought* is a grassroots community group whose objective is to promote the availability and consumption of locally-produced (organic where possible) food in the Townsville / North Queensland region.

Various campaigning groups exist that support sustainable farming and act as champions of the sector; some, such as Landcare and Permaculture Australia², offer practical advice on pest and disease control. These not-for-profits rely strongly on volunteer labour.

¹ A CSA is a partnership between anyone who cultivates food and a network of subscribers who commit to receiving a regular box of produce, generally vegetables. Payment is made in advance to reduce financial risk for growers. Consumers support the farm financially but can perform other roles such as publishing a newsletter, recruiting new members, handling delivery. Although most CSAs try to regulate quantity and variety of produce, there is the expectation that subscribers will adjust to 'seasonal' eating.

² Permaculture is an ecological design discipline that seeks to meet human needs while increasing ecosystem health.

Climate change poses a serious threat to region. The Garnaut *Climate Change Review Report* (2008) warned that Queensland is one of the most threatened regions in Australia. Climate change initiatives have been developed. The *Reef Guardian Farmers & Graziers* program was started in 2003 and aims to get conventional growers, mainly sugarcane and banana-growing, to reduce agro-chemical run-off in the Great Barrier Reef catchment area. The *Farmready* program subsidises the cost of training in sustainable farming methods.

Research Methods

The information presented is based on semi-structured, phone interviews with 10 key informants drawn from the food chain such as growers, producers, distributors and the state sector (the Queensland Farmer's Federation, Advance Cairns). Figure 1 presents a map of the case study region. Data findings and regional characteristics considered important in terms of sustainable food networks are described in Table 1. Prior to commencing research, ethical clearance was gained from the Human Ethics Committee, James Cook University. The interviews took place between April and August 2013. Some respondents were identified through the author's professional networks. The snowball sampling technique was also used as it was a useful way of reducing search costs and revealing hidden populations (Dragan and Isaie-Maniu, 2012). The interviews included questions on reasons and motivations for participation in organic and local food production, the types and levels of community involvement, links with other sustainable food systems or other associated networks, the types and levels of state support and barriers to development. These questions were not relevant in all interviews, but they summarise the spectrum of issues covered across the collective set of interviews.

Out of the 10 key informants interviewed, seven were already involved with sustainable food systems; hence the sample is skewed towards individuals who are likely to hold favourable views of local food systems. In-depth research was conducted into three, community-based groups, *Real Food Network*, *Cooktown Food Connect* and *Food for Thought*. The interviews were supplemented by participant observation at *Food For Thought*, which consisted of six documented meetings attended since its formation. A consumer survey of their members was used to gain insight into who buys local and organic food, why and what factors govern their food choices (see McCarthy and Murphy, 2012). Data was also drawn from three workshops on community wellbeing held in Far North Queensland. This was an important source of data as it gave an insight into the concerns of the wider community and the degree of interest in sustainable food

systems, without any prompting from the researchers.³ Secondary sources of data were drawn from community plans along with websites and policy documents. Under the *Local Government Act 2009*, every council is required to develop a long-term community plan which identifies community needs and articulates the council's and community's long-term vision, aspirations and priorities. The study uses a qualitative, longitudinal, epistemological framework. The examples of sustainable food schemes were chosen due to geographical proximity, prior knowledge and interaction with network members. A decision was made to include examples from an urban region as well as a rural, remote area in order to gain some insight into successful and less successful initiatives.



Figure 1: Far North Queensland
Source: Destination Queensland (2014)

³The workshop 'Tourism and its contribution to Community Well-Being' was facilitated by Professor Gianna Moscardi, Associate Professor Laurie Murphy, Dr. Nancy McGehee and Elena Konovalov.

Table 1: Northern Queensland: Overview of Case Study Region and Data Findings

General characteristics	Case study features and data findings
Role of agriculture	Important to the state's economy
Key issues identified in Community Plans	Wide ranging - including economic vitality and countering unemployment and socio-economic disadvantage; diversification of regional economy; pressure on infrastructure; health and aged care services; climate change and sustainable resource management; greater social inclusion and wellbeing; enhanced education; access to affordable housing; ageing demographic; cultural vibrancy.
Organic & Biodynamic Producers & Retailers	Value-adding operations, including certified cheese and yoghurt manufacturing (Mungali Creek Dairy) and other specialty products (Jervoise Meats; Floravilla biodynamic ice-cream) exist in the Far North Queensland region. <i>The Tablelands Biodynamic & Organic Farmers Co-op</i> <i>Access Organics</i>
Direct marketing entities	<i>Real Food Network.</i> <i>Cooktown Food Connect</i> <i>Food for Thought</i>
Not-for profit organisations/ campaigning groups that support sustainable food systems	<i>Transition Far North Queensland</i> (www.tfnq.org) <i>Tableland LETS Local Energy Trading System</i> (a local trading and barter scheme) <i>Permaculture Cairns; Permaculture Townsville</i> <i>Biodynamics Far North Queensland Inc.</i> <i>Weston A Price Food Chapter (Townsville)</i> <i>Landcare</i>
Climate change Initiatives	<i>Reef Guardian Farmers and Graziers</i> program <i>The Farmready</i> program
Rationale for supporting sustainable food systems	Product freshness, health attributes, quality and taste; access to tropical fruit and vegetables; access to heritage varieties; reduction in food waste; community resilience; reduction of 'food miles'; ecological benefits; local economic development; social opportunities; sustaining rural livelihoods; reduction in costs for farmer; farm-stay and agri-tourism opportunities; fairness and ethical purchasing; farmer empowerment.
Challenges faced in growing sustainable food systems	Logistics; volunteer labour; competition from cheap imports; consumer education; seasonality; limited demand; regulatory barriers to entry; credibility of organic label. The complexity of assessing environmental benefits and costs.

Findings: Rationale for supporting sustainable food systems

The local government community plans revealed a wide range of issues and concerns, including countering unemployment, diversification of regional economy, pressures on infrastructure and climate change. Building on and diversifying an existing agricultural base was a key regional development objective. Out of seven community plans analysed, only three identified local food supply as an important issue. Reasons for supporting local food included community resilience, reduction of 'food miles', economic self-sufficiency and promotion of social opportunities.

There was clear support for sustainable food systems. Interviewees cited health benefits due to chemical-free status of food, product freshness, improved quality and taste, environmental benefits and reduction in food waste. Access to heritage varieties and tropical fruit and vegetables were other advantages. Community resilience was identified as a key benefit of developing local food supply. During the wet season in Far North Queensland, roads and train lines become flooded and supermarkets quickly run out of supplies. It was emphasised that expenditure in the local supermarket leaked out of the community and that a 'buy local' policy contributed to local economic development. Farm-stay and agri-tourism were identified as builders of community capital. According to a spokesperson from *The Real Food Network*, they aspired to create a more environmentally sustainable agricultural system to mitigate climate change, peak oil and food miles. Their mission was described as follows:

“...it’s all about the new food paradigm, a holistic food paradigm, all about innovating, back to where our grandparents were, it’s about real food, organic food....putting farmers first...food security. In this region, we can grow 85 percent of all fruit and vegetables in the world - that is really unique. It’s a social innovation, not a business-as-usual model.”

Local food systems allowed consumers to show their opposition to supermarkets and support for farmers. The dominance of Coles and Woolworths (i.e., the Australian grocery duopoly) in the food chain and farmers' lack of power was a cause of concern. The vulnerability of farmers in dealing with powerful supermarket chains was mentioned, such as the price squeeze, produce being turned away from warehouses if it was delivered late or not up to appearance standards. While an “anti-Woolworths” discourse was evident amongst consumers at *Food for Thought* meetings, one producer didn't share this animosity and was keen to develop business with leading retailers.

There was some concern with fairness and customer care and not just profit maximisation. One respondent told a story about the price inflation of bananas after Cyclone Larry, where bananas rose from about \$2 a kilo to \$12 a kilo in supermarkets. However, local stall holders in the market were still selling bananas at regular prices and did not want to take advantage of the disaster – it was only the commercial growers that sought the best possible price for their produce. This behaviour was at odds with the laws of supply and demand.

One respondent, a farmer, claimed that local supply allowed them to cut costs, such as labour, transportation, packaging and refrigeration costs, which were involved in supplying food to the southern markets. It gave them far more control over the supply chain as they did not have to supply produce by a certain date and time and were not required to adhere to the supermarket's often rigid specifications.

Findings: Barriers to the development of sustainable food systems

Existing contracts between farmers and buyers and the current model of logistics were seen as challenges to the further development of sustainable food systems. North Queensland is largely dependent on food sourced from central markets, notably Brisbane. Large retailers are locked into centralised distribution systems. It was difficult for local consumers to persuade the medium-sized and large commercial growers to supply on a local basis. Supplying smaller, more frequent volumes to local markets implied more time, effort and administration cost (i.e., invoicing) for very little return. In order to ensure consistent access to local food, community leaders took responsibility for transportation into their own hands; hence local food supply was enabled through self-organising structures and was underpinned by volunteer labour. The struggle to get a local food supply network off the ground was emphasised on several occasions. The volunteer nature of local food networks meant that founders risked burn-out after a short period of time. Inability to meet consumer demand for a variety of produce and the convenience of a one-stop shop was another impediment. When food networks failed to attract a large customer base, growers didn't earn enough money to cover the cost of fuel and to justify the time and effort involved in delivering the produce locally. Very often, local food supply favoured the smaller growers, the backyard growers, who were happy to earn some money from it, but their livelihood was not dependent on it.

The tendency to dismiss large-scale conventional farming as unsustainable was questioned and perceived to be divisive. One respondent (Q) proposed that all farming systems – be they local, organic or conventional - make an important

economic contribution to local economies. He believed that sustainable outcomes were dependent on the farmer's approach to farming rather than the type of farming system adopted. He remarked that organic farming used more land and water resources than conventional farming. All farmers faced similar challenges, such as declining terms of trade and lack of power in the distribution channel, irrespective of type of farming adopted. It was remarked that sustainable farming can be approached in a number of different ways and Queensland's farming systems were amongst the most modern and sustainable in the world.

The decline in agriculture was perceived to be a barrier to development of sustainable food systems. The challenges faced by farm families, such as the long hours, rising costs, ageing demographic and succession issues, were mentioned. One respondent claimed that farmers were working for \$5 an hour and it was not surprising that young people were leaving farming. According to one respondent, farming requires hard work, stoicism and resilience:

“We tend to act like an island. Our businesses are community-based but we work alone, we are stoic by nature, the attitude is, we can do this on our own, that's an inbred Australia[n] trait.”

Although there are ardent supporters of certified organic farming in the sample, there were also critics. Organic standards were viewed as too expensive and this created a regulatory barrier to market entry for small famers and producers. The status and credibility of the organic label was questioned by two respondents. One informant remarked than certain chemicals were allowed in some schemes and the standards were “misleading” and an “eye-opener”.

It was remarked that consumers have grown accustomed to year-round access to fruit and vegetables. Seasonality was put forward as a barrier to the development of local food supply:

“The summer time is the ideal time in the tropics to grow salads and Asian greens but consumers have to be prepared to do without other things, like tomatoes and this is hard.”

Radical change in consumer behaviour was required to support local food systems and build knowledge and skill capacity (i.e. through leaflets, films, cooking classes, recipe-sharing). Other barriers to the development of local food networks included competition from cheap food imports; the association of local food with non-mainstream or ‘hippy’ lifestyles and limited consumer demand.

Discussion

Many of the characteristics of sustainable food systems already identified in the literature came to the fore in this case study of North Queensland. In line with the literature, sustainable food systems are associated with the re-localisation of food (i.e. closer connection with producer) and the 'quality turn' (Higgins, Dibden and Cocklin, 2008). The importance of equity in sustainable agriculture is increasingly being recognised in the literature (Pomeroy, 1997) and this study shows that consumers are concerned about the imbalance of power between farmers and corporate retailers.

In the literature, 'social embeddedness' is a strong feature of sustainable food networks where trust emerges from face-to-face interaction and proximity (Venn et al., 2006), and is more important than standards (Paloviita, 2010). Likewise this study found that organic certification, while desirable, was not essential in one 'chemical-free' food network. However, as Born and Purcell (2006) point out, a non-certified farmer who wants to sell at a local market has an incentive to mislead consumers. The values and principles of consumers in this study are similar to those found by Seyfang (2006) who referred to these networks as a form of 'ecological citizenship' where participants saw their everyday consumption decisions as being deeply political.

The literature tends to stress benefits of local food supply such as environmentally friendly production, improvements to farmers' welfare, more wholesome or safer food and more successful business strategies (Nousiainen et al., 2009). It is argued that for small-scale producers, short supply chains may represent the only way of making a reasonable income, and for mid-sized farmers, the desire for increased autonomy in a food chain dominated by supermarkets is a motivating factor (Andrée, Dibden, Higgins and Cocklin, 2010). This study found that short supply chains have their limitations. Consumer demand must be reliable and sufficient to cover the costs of transportation and reward small farmers for their time and effort. There is a risk of romanticising local food systems and the failure to acknowledge the adoption of more sustainable, low-input farming practices by 'conventional' farmers is divisive. Born and Purcell (2006) argue that food research is marked by 'the local trap' and the assumption that 'local' is inherently good. They argue that local food systems are no more likely to be sustainable and socially-just than global systems. It all depends on the practices that agents pursue. Likewise, Levkoe (2011) argues that sustainable food systems are not simply about distance between production and consumption or 'buy local' schemes, but must encompass social justice, ecological sustainability and community health. Goodman (2004) notes that, for all its limitations, the

industrial food system has delivered cheap food and has attenuated income-related class differences in food consumption. He argues that the ‘repeasantization’ is socially exclusive and caters for the upper income groups. These concerns are valid but it must be noted that for rural and remote populations in outback Australia, food trucked in from southern markets contributes to the ‘food miles’ problem. There was no indication from this study that affordable, locally-grown food was made available to disadvantaged and marginalised sections of the population, thereby contributing to the ‘moral economy’ (Psarikidou and Szerszynski, 2012).

This study found that in sparsely populated areas, sustainable food systems were imperfect markets. Barriers identified by respondents in this study are aligned with other studies. Seasonality, lack of supply and a gap between producers’ enthusiasm to supply locally and buyer interest to source locally have been highlighted in the literature (Peterson, Selfa and Janke, 2010). Logistics are a major challenge. It has been found that the reconfiguration of retailers’ distribution models from a ‘direct to store’ to ‘direct to warehouse’ distribution model has weakened the supplier’s ability to distribute to other customers in an economic way, such as to local markets (Australian Food and Grocery Council, 2011). The dependency of many AAFNs on voluntary work renders them economically unsustainable (since their income does not cover the cost of the necessary labour), but they have characteristics of a ‘gift’ economy, in which goods or services are regularly given without expectation of reward (Psarikidou and Szerszynski, 2012, p. 39).

Future research is important in assessing ways for larger farmers to transition into local food markets. It is argued that ‘scaling-up’ is required, i.e. growing individual projects so they achieve critical mass, along with ‘scaling out’, i.e., serving more people over a larger area (Blay-Palmer et al., 2013). Researchers highlight the relationship between public sector procurement and the ‘scaling up’ of local food supply chains (Friedman, 2006; Wiskerke, 2010; Carey al., 2011). By re-localising public sector food procurement, the government and public bodies such as schools, universities and hospitals, have the capacity to achieve their sustainability objectives. The need to explore regulatory barriers and accessibility in an institutional sector has been emphasised (Blay-Palmer et al., 2013). In contrast to Australia, several European countries provide subsidies for farmers making the transition to organic farming, offer tax concessions, impose taxes on synthetic pesticides and recognise externalities associated with conventional agriculture (Pillarisetti, 2002). In a *Nourishing Communities* research project (Blay-Palmer et al., 2013) the agenda is to explore innovative models for financing community-food projects, such as no-interest funding, crowd

sourcing, business sponsorship and funding of infrastructure by regional development agencies.

This study found that actors in sustainable food systems have embraced self-help solutions in an unforgiving environment. As actors in sustainable food systems struggle with weak financial and human resources, it would be good practice to explore collaborative partnerships and networks. Networks consisting of farmers, producers, consumers, local restaurants, food service companies, local councils, universities and not-for-profits may help actors solve the scaling-up problem that arises in local food systems, facilitate market access, reduce logistical problems and aid transfer of technical skills (learning about sustainable farming practices, post-harvest food handling practices, avoiding food waste, etc.). Partnerships in global agri-food chains are mostly seen as reactions to government and market failures and act as agents of change (Bitzer, 2012).

In a political environment that clearly favours large-scale, export-oriented corporate farms, the issue is what, if anything, should be done by governments to address deficits in regional agriculture? According to Collits (2011), politicians should be able and willing to defend their spatial interventions and need to demonstrate awareness of the opportunity costs of regional spending. Research demonstrates that the global food system is in crisis and demands complex policy making and integration across government portfolios such as health, environment, agriculture, education and transport (Lang and Heasman, 2004). Australian researchers have established indicators for monitoring the social and ecological outcomes of community gardens (Beilin and Hunter, 2011). Economic measures which include the multiplier effect reveal localised food supply chains have impressive economic impacts⁴ (Ward and Lewis, 2002). Future research in this area could meaningfully expand the range of indicators and measure social, ecological, health and economic outcomes of sustainable food systems.

Conclusion

This paper explored the rise of sustainable food systems in North Queensland and analysed the challenges the region faces in scaling-up. In view of the potential benefits, a more serious evaluation of local food policy should be taken by Australian policymakers. Without establishing a strategy for the sustainable food sector, the sector's growth will continue on a haphazard basis.

⁴ It was found that £10 spent with a local grower circulated two and a half times locally and was worth £25 to the local economy. This compares to £10 spent in a supermarket which leaves the area quite quickly, resulting in a multiplier of 1.4, meaning it was worth £14 to the local economy.

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