**Resilience and Fair Trade**

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There is a growing interest in the resilience of agri-food supply chains. Questions are emerging regarding the features of a resilient supply chain and how one can enhance resilience, particularly with respect to food production and supply given the ‘perfect storm’ facing the nexus between food, climate, energy and water. The new UN Sustainable Development goals (goal 2.4), call for resilient agricultural practices as an important part of achieving food security and sustainable agriculture (United Nations 2014). Furthermore, global shortfalls in supply are forecasted for a number of valuable commodities e.g. cocoa. As a response corporates have been implementing sustainability initiatives with smallholder farmers to secure future supply. Despite this predicted food supply crisis there is a limited amount of academic research on resilience in agri-food supply chains.

Currently resilience is interpreted in different ways by different disciplines. According to some experts resilience is a function of the food system to absorb external shocks such as climate change and maintain core functions of food production and distribution. This classic engineering interpretation of resilience refers to how quickly a system returns to a steady state, or equilibrium, after a stress, shock or disturbance. This recovery view is also the dominant approach in supply chain logistics where a return to equilibrium within an acceptable time period at an acceptable cost appears to be the goal. The problem with this view of resilience is that it tends to prioritise the needs of the focal firm in the supply chain and often the buyer rather than the supplier e.g. farmers/producers in supply chains and their communities. There is some very useful work in sustainable supply chain research particularly from an environmental management perspective but this work says little about resilience and social justice. In contrast those working on ecosystem resilience call for the promotion of biological understanding, social and ecological diversity and the promotion of social capital. This ecosystem view sees resilience as a more adaptive and dynamic process; the system may change when certain thresholds or tipping points are reached, creating a new equilibria. Thus resilience is the ability of the system to return not to the original state, but a new equilibrium where the key functions of the system are still delivered. Some political economists are also critical of current resilience thinking and argue that research fails to acknowledge that food systems are disconnected from the communities and societies they serve and fail to tackle the issues of social justice and food governance.

It is clear that current research on resilience has thus far failed to integrate the different perspectives of resilience and incorporate a multi-stakeholder integrated whole system approach, inclusive of consumer’s, farmers (small and large) and their communities etc. Resilience research has prioritised economic measures at the expense of social and environmental considerations. Hence, there is a call for new interdisciplinary approaches to integrate social justice, environmental considerations along with economic measures across a whole system perspective. We therefore define food system resilience as ‘*the ability of a food system (made-up of stakeholders who include producers and their communities, processors, transport, distribute, retail and consumers of food) to adapt to stresses and disturbances whilst providing both stable levels of nutritious food to the public and a sustainable livelihood for producers’*.

This new integrated approach to resilience is even more urgent bearing in mind that recent evidence suggests that agricultural industrialization has made our food systems less resilient and more vulnerable to external shocks. The highly connected and concentrated nature of our food systems coupled with a lack of diversity and decision-making autonomy for farmers has resulted in a food system that is more vulnerable to shocks. Reduced diversity resulting from more homogenous cropping systems and less crop rotation, all makes for crops more prone to pest outbreaks and price instabilities. This also has a negative impact on soil fertility. Furthermore, there is less diversity of food actors due to concentration of power at farm, processing, manufacturing and retail levels meaning any disturbances to the food system are amplified. The concentration of power at buyer level as resulted in an unfair price squeeze on farmers resulting in some struggling to cover costs of production. The highly integrated nature of agricultural production particularly livestock production, makes the food system more vulnerable to fast disease spread e.g. Porcine Epidemic Diarrhoea virus (PEDv), which has resulted in a 10% death of the US pig population. So while we currently enjoy an extremely productive food system that results in a large quantity of inexpensive food for consumers these benefits have come at a significant environmental and social cost.

Moreover, our own engagement with supply chain practitioners has highlighted a gap between the academic literature and practice among various stakeholders (farmers, companies, NGOs etc.) at different parts of the food system. Actors particularly producers are calling for more; information sharing and education along the supply chain from consumer to producer; diversifying or sharing out production to a wide number and geographically diverse suppliers rather than relying on a few large producers; more risk sharing particularly with regard to pricing, more diverse forms of ownership of production; co-operation; flexibility and adaptability; improved regulation (on water, forests and other eco-system services) and on prices and wages coupled with applying technology to enhance risk prediction and more innovative incentive and finance mechanisms for producers.

One approach that aims to adopt both a multi-stakeholder socio-economic approach is Fair Trade and its associated third party certification mechanism. Fairtrade is defined as “*a trading partnership, based on dialogue, transparency and respect, that seeks greater equity in international trade”.* In practice, Fairtrade certification actively supports producers in developing countries through importing and retailing their products. Moreover, acting as a social movement, fair trade campaigns for changes in the conventional terms and conditions of international trade which disadvantage producers in developing economies. Fairtrade does prioritise socio-economic factors by working to facilitate market access for producers, paying producers a fair trade minimum price (floor price), which provides producers a guaranteed minimum price when the world market price falls below this level. In addition, whatever the conventional market price producers in the Fairtrade system are also paid a social premium per tonne of produce (e.g. cocoa it $200 per tonne) which is used for community infrastructure projects in areas such as education, water provision, health services, income generating projects for women and agronomy developments such as crop diversification (see photo 1).

PHOTO 1 COMMUNITY INFRASTRUCTURE PROJECT

In addition, Fairtrade works directly with producer organizations to help them build their own capacity and organizational strength. Kuapa Kokoo a cocoa farmer’s cooperative in Ghana working with Fairtrade International have decentralized their cooperative of 85,000 small-scale cocoa farmers by re-registering all their members who have all had to buy a share in Kuapa thus strengthening the democracy of this producer organization further. The fair trade movement has also given birth to some very interesting financial institutions such as Shared Interest, Oikocredit and Cordiad who all provide social finance for innovative trade mechanisms such as; pre-finance for individual orders, credits and loans for stock facilities and pre-harvest loans when cash flow is a major problem for producers.

Since 2011 Fairtrade certification has also strengthened its environmental criteria to include; some compulsory and continuous improvement criteria. Firstly, farmers in the Fairtrade system must compulsory protect areas with high conservation value as defined by the Forestry Stewardship Scheme (FSC) and wild harvesting from uncultivated areas needs to be in line with collected species survivability. The environmental standards also include requirements for: integrated pest management, prevention of soil erosion, improvement of soil fertility, sustainable use of water sources, sustainable waste management, prohibition of GMOs, protection of biodiversity, use of renewable energy, and reduction of greenhouse gas emissions. More recently, Fairtrade International developed the *Fairtrade Climate Standard*, as a way for smallholders and rural communities to gain access to the carbon market while also improving their capability to face climate change. The standard sets the requirement for projects which reduce emissions in producer and rural communities, making them eligible for *Fairtrade Carbon Credits*. A minimum price ensures the costs of running the projects are covered. In addition, producers will receive a Fairtrade Premium for each credit sold: money to support them to adapt to climate change in their communities.

A major project for Fairtrade International has been to initiate innovative approaches to climate change resilience for smallholder farmers via a range of climate change adaptation projects including, supporting coffee farmers with their battle against coffee leaf rust in Latin America which has increased due to changing weather patterns. Supporting banana farmers in Peru in their battle against the insect red rust thrips, which can reduce banana yields by 40%. Working with local NGOs, Universities and producer cooperatives, Fairtrade International has been funding work to develop a range of pest control solutions including; insect color traps, fence plants around the banana plots to attract thrips, testing of commercial organic biocides and using local plants and garlic extracts to repel the insects. Furthermore, a partnership between the Dutch Fairtrade initiative Max Havelaar and the *Dutch Post Code Lottery* has raised 328 million Euros o funding for a Climate Change Academy in East Africa to work with NGOs, producers, Government and business to encourage innovative approaches to climate change adaptation.

ADD PHOTO 2 and 3 OF A FAIRTRADE CLIMATE CHANGE PROJECTS HERE

The Fairtrade sector is far from homogenous and some fair trade organizations go beyond the Fairtrade minimum standards in their work with producers providing additional social-economic benefits. Firstly, a number of fair trade pioneers have implemented produce ownership into the governance structure of their business models. In the case of Divine Chocolate 44% of their shares are owned by Kuapa Kokoo farmer’s cooperative in Ghana, the International Nut Producers cooperative (nut producers across 3 continents) own 42% share of Liberation Nuts and Cafédirect Producers' Foundation (CPF) own 5% of Cafedirect plc. This producer ownership and board representation provides an increased opportunity for shared learning and problem solving between supply chain actors coupled with share dividend and a share capital against which producers can borrow money for capacity building projects. The Cafedirect Producers Foundation working with smallholder tea and coffee farmers have just raised a new 4-year fund secured from UK Charity Comic Relief of £600,600 for climate change adaptation works, following on from a similar fund which ended in 2013. A total of 33 projects benefiting 55,000 people were funded in 2012 including; climate change adaptation, crop diversification plus connecting producers via *We Farm* mobile phone platform, allowing farmers from 3 continents to share best practice and information via SMS mobile phone technology.

PHOTO 4 OF WE FARM PROJECT

These fair trade pioneer enterprises also provide additional Producer Support and Development funds (usually 2% of turnover) for additional resilience building projects such as support with diversifying producer income and supply, climate change adaptation work, gender equality initiatives and technological farm innovation. Divine Chocolate has recently allocated these producer support funds for a range of projects including; non-formal education adult literacy classes across Kuapa Kokoo village societies. This has resulted in an increased participation by female Kuapa members and rising female confidence levels. In addition, Divine has been working with fledgling producer groups in East Africa to diversify its cocoa supply. Working with Rwenzori Farmer’s Cooperative Union in Western Uganda Divine has supported the development of cocoa production and the additional payments from the Fairtrade system have funded the training of producers in cocoa production, demonstration farm plots and model farm tours for cooperative members. In 2015, Rwenzori cooperative supplied 25 tonnes of cocoa for Divine.

It is clear that Fairtrade delivers an integrated multi-stakeholder approach arcoss social, economic and environmental dimensions of resilience. It is not perfect as Fairtrade is often working in complex environments but it does provide a more cooperative, risk sharing approach compared to conventional food supply chains. However as some major retailers continue to reset their product ranges based purely on economic measures Fairtrade appears to be losing ground in the mainstream with a number of fair trade pioneers losing their UK supermarket shelf position to cheaper alternatives. As a result Fairtrade sales for the first time in 25 years have declined by nearly 4% in 2014.

This decline is a concern, however Fairtrade is not the only initiative working to strengthen resilience in the food system. Local food networks such as ‘SpeiseLokal’ in Austria plus social movements such as ‘Slow Food’ and Via Campesina movements are alternative ways of organising food systems which encourage increased civic participation to produce ecologically sound and culturally diverse foods. There is also an increasing interest in diversified farming systems which design ecologically sensitive farming approaches. From research so far it is clear that further interdisciplinary work is requited on what are the key features of multi-stakeholder resilient food system which will work at multiple spatial and temporal scales. Future challenges include; how data can be used to support decision making associated with resilience, how can ecosystem services be better regulated and how can a scale be developed to measure resilience.