Loading supplies for a locked-in community. Credit - The New Zealand Food Network and the Rapid Relief Team

POLICY BRIEF

Food systems security and disaster recovery

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Recent disasters have highlighted the continued vulnerability of productive assets, economic activities, communities, and wellbeing. In particular, many of these disasters have affected food security across different communities.

This policy brief is designed for policy analysts new to the resilience or disaster space as an outline of food security issues that may arise immediately post-disaster. It encapsulates research from a wide variety of sources, detailing key findings on food security immediately post-disaster and providing useful case studies to illustrate these findings. It also identifies where more research is needed.

Possible actions

Future proof funding for food system resilience:

The changing climate, sea-level rise, and natural phenomena like earthquakes put extra strain on Aotearoa's distribution infrastructure. This will only become more pronounced. Key to future-proofing the food system is moving from 'just-in-time' to 'just-in-case' by resourcing well-stocked national emergency pantries in a few different locations. This would be a short-term buffer if our ability to move food around the country is constrained. It is also important that communities are able to redistribute surplus to those who need it quickly and easily.

Enhance food system sovereignty and equity:

Some degree of food system disruption is unavoidable after a disaster. We need to enable and empower local communities, mana whenua, councils, and national emergency management to respond quickly by reducing the barriers for accessing resources in a crisis. A dedicated resource for emergency response that doesn't require Cabinet sign-off could streamline solutions for communities.

Advance food system diversity:

Food system diversity means more than having a varied diet and is a critical component of resilience. Diversity in food systems includes:

- domestic production of a much wider range of commodities in a wider range of places
- genetic diversity, so that we use plant varieties that thrive under different climates
- diversity of distribution channels and supply chains to provide greater redundance and resilience in the event of disruption.

How do disasters affect food availability?

Natural hazards and extreme weather events that result in people or communities being cut off from their regular earning source and supply lines can result in temporary or acute food insecurity. Any event resulting in acute food insecurity is likely to exacerbate existing chronic food insecurity. Reliance on the food welfare sector as a long-term strategy is not sustainable if food security is the goal, however the array of community groups that offer food welfare are likely to be able to proactively bolster food security and enable food welfare recipients in an emergency.

Food security issues are exacerbated by high demand for housing and high-density living, which has reduced the amount of land available for home vegetable gardening. This limits people's production of their own food and access to affordable high-nutrition foods.

Various researchers emphasise that, while Aotearoa New Zealand has built up regional emergency recovery experience and plans, **in the case of a national disaster the country is unprepared to cope** with the widespread food insecurity that is likely to result.

The Christchurch earthquake of 2011, Kaikōura earthquake of 2016, COVID-19 lockdowns, and the floods of 2023 all resulted in communities responding to challenges with economic and social solidarity and mutual aid. **Research shows that communities have the skills to respond to local disasters but need better resourcing, support and prepared advice** to make their response more effective, efficient, and extensive.

Case study: Impact of financial pressures

During the COVID lockdowns, food packages enabled recipients to divert money for other necessities, showing the financial pressures that people were experiencing. One food welfare provider stated: *"we were providing food so people can use the money that they would otherwise for food, on power, rent and those sorts of things… the intent was to hit people early with food welfare so that they could survive longer on less."* [1]

Case study: Increase in food parcels during COVID lockdowns

A variety of research detailed increased demand for food parcels during the COVID Level 3–4 lockdowns. While the extent of this increase varied, for most regions and organisations it was between 300–400% times the usual demand, with some experiencing increases of up to 900%.

Wellington City Mission Food Parcels Credit
Image credit: Wellington City Mission, Facebook

Forms of social stratification that existed before any disaster are often reproduced in response and recovery efforts. In particular, much of the public education on emergency preparedness focuses on individual preparation that is not always possible for marginalised communities, whānau, or individuals (e.g. preparing by storing enough food for several weeks).

Even when in real need of food, issues such as pride and fear of judgement can prevent people from accessing food welfare. Researchers found that "food welfare providers [should operate] with limited criteria when offering food support." [2]

What are the barriers to unlocking local food resources?

After an emergency, it is common to see the (temporary) closure of smaller food providers, including farmers markets, cafes, butchers, restaurants, hotels, and fast-food providers. The closure of these businesses and distribution services essentially funnels the bulk of market food transactions through supermarkets and other local food networks (including marae, food banks and food rescue services, community gardens, pātaka, hunters, fishers, and small-scale local farmers). These changes play havoc with supply chains, affecting both producers and consumers.

The focus on exporting food also means that, after a disaster, systems need to be overhauled before they can serve local communities. This is especially apparent in poor and rural communities.

Case study: Disconnect between local food and community

Prior to the Kaikōura earthquake in 2016, the local milk factory and commercial abattoir closed down. This resulted in local job losses and subsequent population decline and eroded the connection between local communities and the food grown there.

"It was only people who had homekill who had fresh meat. Everyone else had to live off... sausages. In terms of vegetables, everyone was sharing... From a resilience perspective it really highlighted that we have a really good homekill guy here, but commercially he couldn't actually kill... It was the same with the milk; we were tossing away hundreds of thousands of litres a day, because you can't sell it for human consumption [without pasteurisation]. So a lot of people were coming up to the farm gate and got it, and they were advised to heat it up to 70 degrees... so there was a lot of that sort of stuff going on." [3]

Researchers noted the significant contributions of non-market and not-for-profit practices were unrecognised prior to the COVID lockdowns. These included many smaller food banks, meal services and 'free stores' co-ordinated by churches or located in people's homes. Other contributors to food security are social services that include some aspect of food provision (e.g., youth groups, drug and alcohol services, church meals, school breakfast clubs), as well as the more informal gifts and sharing that occurs through families and communities.

Organisations with paid staff, facilities, the ability to meet health and safety requirements, and good existing relationships within their community are able to adapt and respond most easily in an emergency. Important infrastructure for these organisations includes Starlink connections, generators, chillers, food storage facilities, trucks, pallets and crates, and forklifts (and the appropriate

training and licenses required to operate them).

The processes used by food security organisations are often time-pressured given much of the surplus food available is often close to best-before dates. It was noted by several researchers that the community in general needs more clarity around food safety 'best practice', including interpreting use-by and best-before information, in order to ensure safety and reduce waste.[4] For example, in the aftermath of Cyclone Gabrielle, people were unsure if they could eat the contents of tins that had been submerged in flood waters.

When supply chains are disrupted, how do communities feed themselves?

Interruptions to food supply chains can happen at individual, local, regional, national, and international levels. In Aotearoa, our geography and distance can exacerbate supply chain disruptions. The introduction of just-in-time resourcing in the late twentieth century provided efficiency gains for business, but decreased community resilience. According to researchers, Aotearoa New Zealand's **main supermarket chains have only a week's worth of food supply available at any one time.**

The lack of interface between different modes of transport supplying goods around Aotearoa New Zealand becomes problematic post-disaster. If the roads are out, coastal shipping is not frequent enough or synchronised with other services to provide an alternative supply line.

Post-Cyclone Gabrielle, the Tauranga Aero Club made 34 trips in four days to drop off humanitarian aid to affected communities, but this was provided on a voluntary basis and not coordinated with the NZ Defence Force.

When supply chains are disrupted by a localised disaster, existing food rescue and food support networks are often used to distribute food to those in need. As the founder of a food rescue organisation noted, these systems tend to be designed so "you're keeping control in the hands of the people who are working in the community and know what is needed at the grassroots level."[5]

Case study: Marae response

Immediately after the Kaikōura earthquake, the local marae Takahanga registered between 500 and 1,000 individuals. Reportedly several hundred tourists slept at the marae. Over the next six days, the marae served up 10,000 meals and assembled 1,700 care packages for distribution to affected people, both tourists and locals. The marae received resource support from other Māori stakeholders, e.g. 1,000 crayfish were donated to the marae by Ngāi Tahu fisheries whose local refrigeration unit lost power following the earthquake.

What encourages community recovery and resilience?

The response to the recent challenges faced by Aotearoa New Zealand demonstrates the collective effort required to sustain health.

While disasters tend to strengthen existing social capital, they tend not to build new relationships between communities and organisations. These relationships are best established prior to an emergency. In Aotearoa New Zealand and elsewhere, research has shown the stronger and tighter the social ties, the better the resilience outcomes.

Accordingly, developing networks, fostering connections, and promoting collaboration can all contribute to resilience pre- and post-disaster. [6]

Aotearoa New Zealand's community response has the potential to be expansive. However, Government preference for funding specific projects rather than administration and network building means that the 'soft infrastructure' that can facilitate the distribution of emergency food supplies is at risk.

Social food hubs can help communities to access good food, as well as social connections that extend their support systems. They also help growers to connect with communities, and for the public to learn about, share, grow, buy and enjoy good food.[7] Hubs could be based in marae, schools, community organisations, urban farms, or town centres.

Case study: Tourists and migrants

In the first COVID lockdown in Queenstown, food security was an issue for many of the town's population due to its tourism dependency. Community-based food welfare providers reported high demand for food parcels largely due to COVID-19-related income reductions and job losses. With assistance from Foodstuffs South Island, Baskets of Blessings went from preparing and delivering 200 food baskets a month prior to the March/April 2020 COVID lockdown, to over 4,000.

High numbers of migrants accessed food welfare as the result of tourism job losses, reduced shifts, and loss of access to meals they had received in hospitality roles previously. Many of these migrants were ineligible for government support.

Food parcels. Credit: Kaibosh Food Rescue

Background

Aotearoa New Zealand is a global leader in food production. Our country has approximately 50,000 farms, orchards, and vineyards, covering nearly 14 million ha. Some estimates suggest we feed as many as 40 million people. However, approximately 14 percent of people in Aotearoa are chronically 'food insecure', meaning putting healthy kai on the table each day is a significant challenge requiring assistance.[8] Marginalised groups such as disabled people, Māori, Pasifika, and those in receipt of state welfare disproportionately experience food insecurity.[9]

Growing crops. Image credit: Markus Winkler.

Māori have significant experience and knowledge of disaster management in relation to natural phenomena. Iwi responsibilities as kaitiaki (cultural guardians) for their respective rohe (home territory or region) extend particularly to marae, which are focal points for communities to access accommodation, food, social support, and medical care in the event of a disaster. In addition to the cultural imperative to provide hospitality and care for the community, some marae are designated 'welfare hubs' by the National Emergency Management Agency (NEMA).

Existing regulation and policy

1996 World Food Summit

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Food insecurity exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain.

Sendai Framework for Disaster Risk Reduction 2015–2030

Disaster management must be multi-disciplinary, inclusive, and accessible through collaboration across public and private sectors including the media. Government must actively empower local authorities to work and coordinate with Indigenous peoples in disaster risk management.

2002 Civil Defence and Emergency Management Act

Goal of a 'resilient New Zealand'

Most disasters in Aotearoa are localised. A state of local emergency can be declared by a Mayor, and a national state of emergency is declared by the Minister for Emergency Management.

Once a state of emergency is declared, councils can access government funding under the Civil Defence Emergency Management Act 2002. The council will request civil defence payments, which are then sent to Cabinet for approval. Councils can spend money as per the legislation and then apply for reimbursement. Interviews with various government and NGO organisations revealed inconsistencies in how this has occurred, leading to some councils being denied reimbursement. This has led to some reticence in spending on the part of some councils.

Local councils work with community groups on the ground to confirm whether they meet the definition of an 'essential service'. Once this occurs resources can be channelled through those organisations. There is a range of criteria used to determine whether/how funding is allocated. For example, during COVID, community organisations in Wellington had to show they had a track record working with food and that demand for their services had increased due to COVID-19 and the pandemic response.

In a local emergency, if someone is experiencing food insecurity, they can call the local emergency management coordination centre, who will take their details and organise for either cash or food to be accessed. The bureaucracy is described as 'minimal' and officials operate on a trust model with the public. The Ministry of Social Development can 'soften' its usual policies to ease access to food in an ad hoc manner.

Food donations, Tīnui, Wairarapa, folllowing Cyclone Gabrielle. Credit RNZ

NEMA is currently working to improve relationships with iwi and hapū, as marae are often centres of community recovery post-disaster. However, after Cyclone Gabrielle, marae in Hawkes' Bay received disaster relief funding several weeks later than local farmers.

During the COVID pandemic, the Ministry of Social Development and various not-for-profit organisations began working together. This resulted in the founding of the New Zealand Food Network, and Aotearoa Food Rescue Alliance, and some funding of Kore Hiakai Zero Hunger Collective. These organisations together have created a backbone infrastructure for food security that enables similar resources as countries comparable to Aotearoa New Zealand and will allow a more efficient response to community needs in a disaster.

Areas for more work

Māori understanding of kai and revitalisation of Māori kai sovereignty should be a core part of the vision for local food systems and needs more work in presenting a different worldview to linear industrial food systems.[10]

Food systems are made up of complex interdependencies, relationships, and feedback mechanisms. More work is needed to understand the ways in which different populations are vulnerable to cascading impacts, and how interventions could affect wellbeing across systems.

Research is underway looking into food rescue groups affected by Cyclone Gabrielle and the Auckland Anniversary Weekend floods. This aims to discover what hard infrastructure is needed to best support food security groups in resilience and recovery work. For example, can supermarkets include community groups in forklift license training?

Kore Hiakai is currently investigating the issue of homekill from a local food economy perspective - the results of this work may have an impact on food security after a disaster.

It is unknown whether research exists examining the availability of appropriate food for those who have food allergies, cultural food practices, or those who choose ethical diets. However, food rescue and security practitioners are increasingly trying to respond to these concerns.

Researchers reported that the horticulture industry did not have good guidelines for recovery after extreme weather events:

- There was little guidance and support about what to do immediately with crops, other than to discard any submerged produce. Fruit growers were unsure what to do with fruit that hung above the floodwaters but was not submerged. For example, the food safety regulations do not cover situations where an orchard is flooded, but only the trunks of the trees are affected. In this case, is the fruit that was never submerged safe to harvest or to be treated and diversified (i.e., could apples be canned)?

- Post flooding, farmers were unsure about whether their soil would be safe to be replanted. Researchers were clear that we don't have the science fundamentals in order to be able to test or even know what should be tested.

Apple orchard. Image credit: NZ Story.

Conclusion

Since the Canterbury Earthquakes there has been a wide range of research studying the impact of disasters on communities. This series of briefings is designed to compile this research into concise, policy-focused findings with a practical application for community recovery immediately post-disaster.

Recommended actions in the food security space include future proofing funding for food system resilience, enhancing food system sovereignty and equity, and advancing food system diversity.

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Image: Apricot orchard
Credit: NZ Story

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